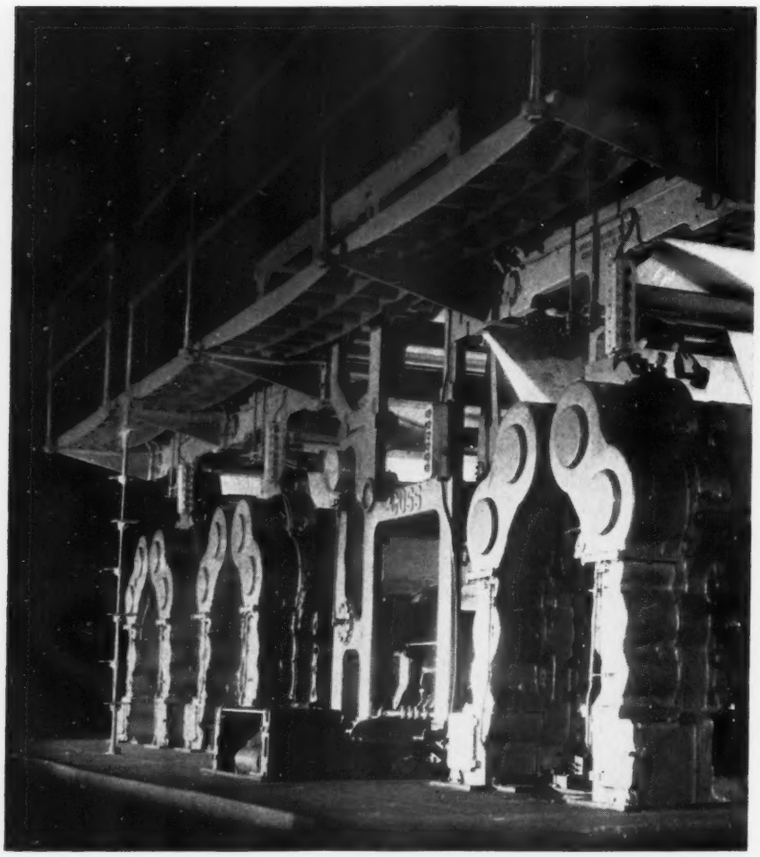
PRINTING EQUIPMENT ENGINEER

A TECHNICAL PUBLICATION FOR PRODUCTION AND MECHANICAL EXECUTIVES IN THE GRAPHIC ARTS INDUSTRY

GOSS

THE PIONEER OF FEATURES — WIDELY IMITATED



★

SPIRAL AND HELICAL GEARS

QUICK PLATE LOCK-UP

UNIT VERTICAL DRIVE INTO COMPOUND INTERMEDIATE GEAR

END ADJUSTING INK FOUNTAINS

TIMKEN PRE-LOADED CYLINDER BEARINGS

OIL TIGHT HOUSINGS WITH FORCE FEED LUBRICATION

100% ANTI-FRICTION CONSTRUCTION

★

● IT ALL ADDS UP TO PROVEN LEADERSHIP

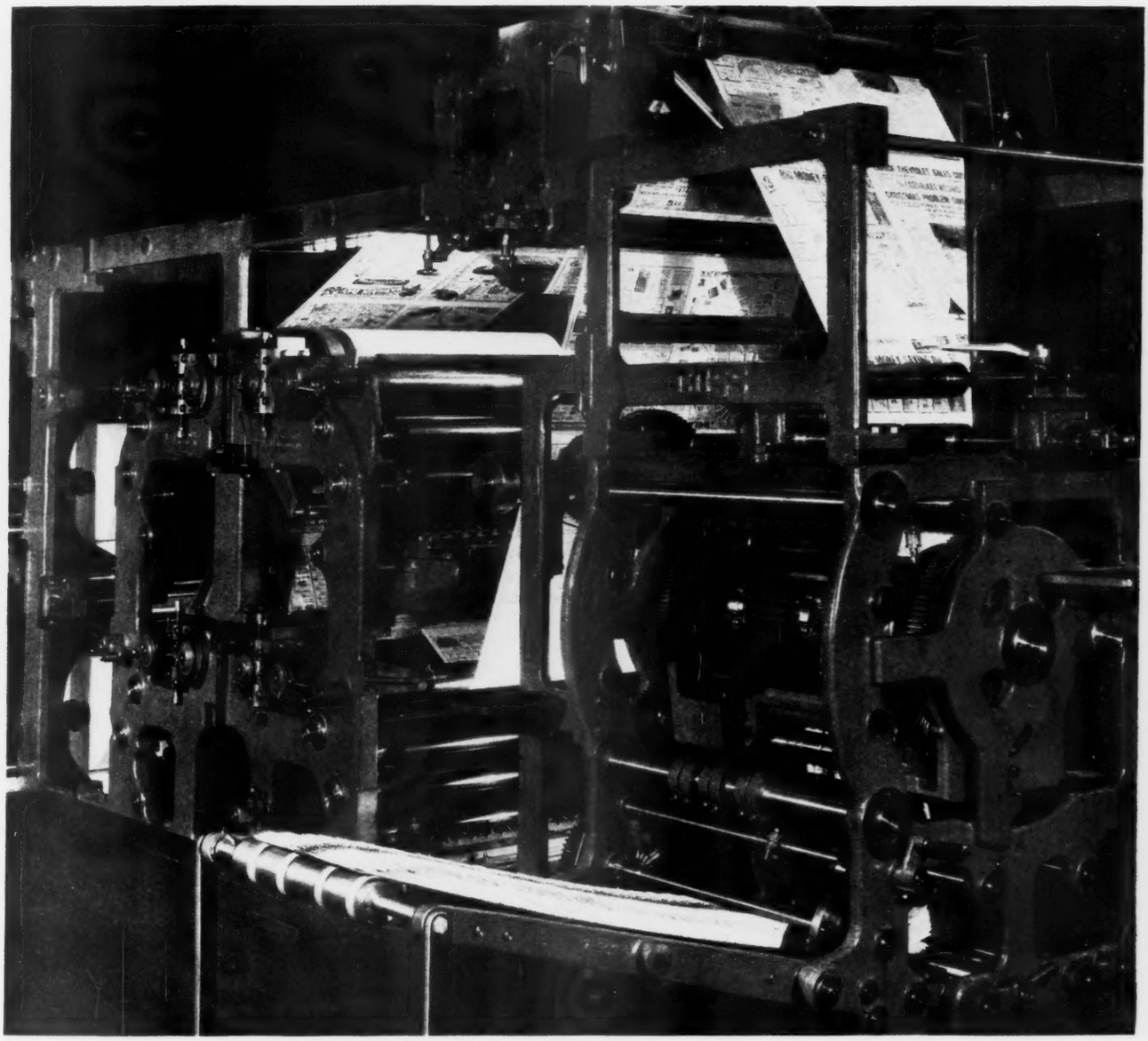
The introduction of numerous improvements in newspaper press design during the past 10 years has marked the advance of Goss engineering. Universal imitation of these improvements has definitely established their superiority . . . The present Goss High Speed Anti-Friction Press continues this tradition by incorporating exclusive features such as Reverse Delivery, separate drive of inking arrangement, 100% ball bearing inking rollers, etc. An experienced research and engineering department is constantly seeking methods to raise printing standards and reduce production costs — experimenting, checking, testing, working to keep the Goss Press years ahead . . . The full facilities and talent of this department are at your immediate disposal. Submit your problems to us for authoritative advice.

THE GOSS PRINTING PRESS CO.
CHICAGO - - - - ILLINOIS

GOSS

NEW YORK - 220 East Forty-Second Street
SAN FRANCISCO - - - 707 Call Building
THE GOSS PRINTING PRESS COMPANY OF ENGLAND, LTD. - - London, England

GOSS UNITUBE PRESS



COMBINES SPEED, ECONOMY and QUALITY PRINTING

● Featuring innovations of design and operation . . . opening new fields of production and quality printing . . . the Goss Unitube Press has aroused widespread interest among publishers of medium-sized newspapers.

The Goss Tension Lock Stereotype Plate removes all the hazards that formerly limited tubular press performance — permits production of perfectly printed newspapers at sustained speeds of 36,000 to 40,000 per hour.

Tapered Roller TIMKEN BEARING EQUIPPED

More accessible, flexible and variable to color combinations than any press of its kind, the Goss Unitube permits shorter web-leads and minimum floor space.

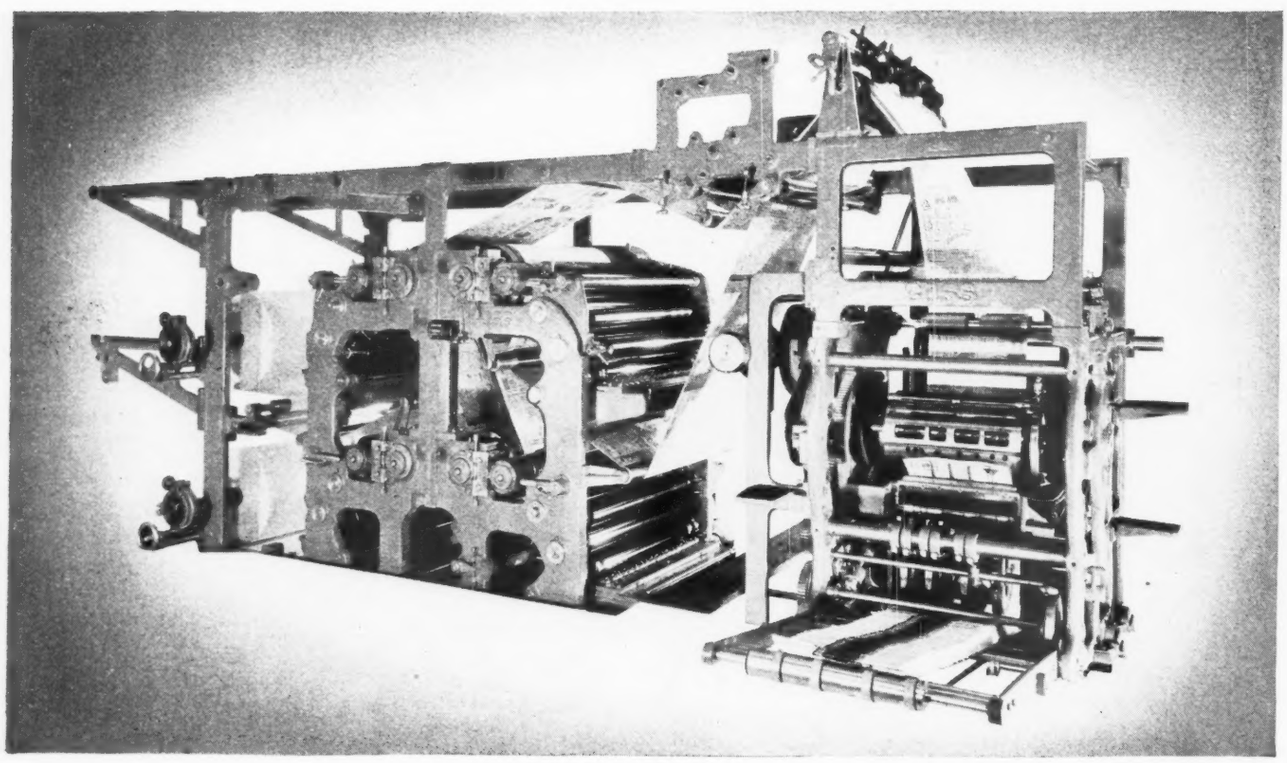
All rapidly rotating parts are *dynamically balanced* and mounted in anti-friction bearings or oil-lubricated bronze bushings. The plate and impression cylinders are mounted in preloaded Timken Roller Bearings.

Turn the page to the Timken ad that tells what these bearings mean to you.

THE GOSS PRINTING PRESS CO., CHICAGO
NEW YORK - - 220 EAST FORTY-SECOND STREET
SAN FRANCISCO - - - - 707 CALL BUILDING
THE GOSS PRINTING PRESS COMPANY OF ENGLAND, LTD. - - - LONDON, ENGLAND

GOSS

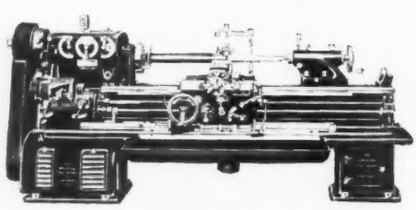
THE GOSS UNITUBE PRESS IS TIMKEN BEARING-EQUIPPED



Like its big brother, the Goss Heavy Duty High Speed Anti-Friction Press, the new Goss UNITUBE Press features Timken Bearing speed and precision on all plate and impression cylinder shafts.

Each printing unit contains 32 Timken Bearings of the precision machine tool type—2 bearings per journal, 4 per cylinder—preloaded to eliminate all shaft play and to prevent stagger marks in the printing. The Goss UNITUBE Press is designed for the economical production of medium-sized newspapers, and has a productive speed of from 36,000 to 40,000 complete newspapers per hour.

With Timken Bearings holding the plate and impression cylinders in accurate relationship — both longitudinally and concentrically — and assuring smooth, frictionless operation, a high standard of printing quality is maintained at all times. Power demands are radically reduced. More and more printing press users are learning that it pays to have Timken Bearings in the equipment they buy. It will pay you to install them.



Machine Tool Precision For Your Presses

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *TAPERED ROLLER* **BEARINGS**

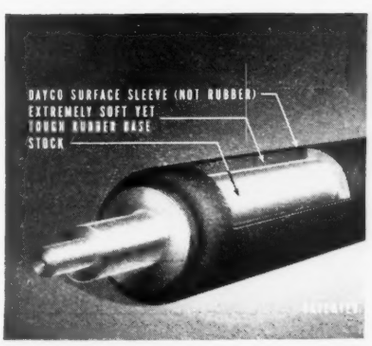
FROM
COAST TO COAST

The Dayton Rubber Manufacturing Company's
"STAYPUT" Roller

is enthusiastically received by newspaper pressman. Orders and re-orders are the best testimonials.

- **RESILIENT** — Feed rollers that are soft and hold their accurate circumference.
- **DURABLE** — Distributor rollers once accurately set hold their accurate contact from year to year.
- **EFFICIENT** — Form rollers with the right plasticity provide a permanent printing face of the highest quality.

DAYCO "STAYPUT" ROLLERS



A synthetic sleeve-covered rubber roller designed especially to produce a better printed newspaper. Does not require re-setting, re-grinding or washing. Has long life and less upkeep expense.

A roller equipment that differs as radically from rollers made in earlier years as the ingenious mind could conceive. The result of years of scientific research.

NELSON ROLLER COMPANY

TRIBUNE TOWER • CHICAGO, ILLINOIS

G.E. Leads the Way Again in A-c. Press-Drive

The *Detroit News* will soon install a new high-speed, 16-cylinder Scott color press. This press will be geared for 36,000 papers per hour. The General Electric press-drive system will be used—including two 150-hp. **two-speed** double-motor a-c. drives, with full-automatic, contactor-type control.

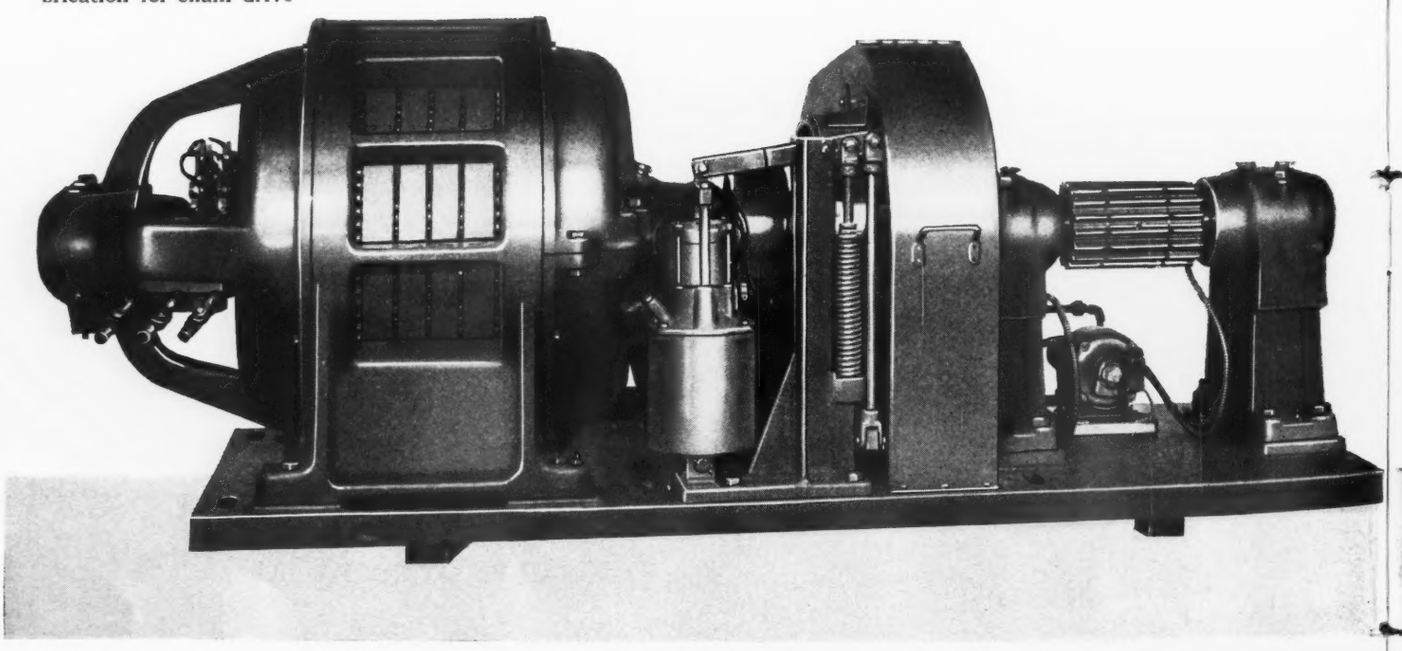
This new development—the use of two-speed a-c. motors for press drives—is of vital importance to the newspaper industry because it materially increases the money-saving possibilities of the a-c. drive system, already by far the most economical type of drive from the standpoint of over-all costs.

General Electric double-motor a-c. drives for high-speed presses have proved themselves successful in a score of newspaper plants. With G-E full-automatic control they form a press-drive system that meets every requirement for high-speed press operation—smooth performance at any speed, reliability, ease of operation, safety, flexibility, and low maintenance. Forty-five of these equipments are now in operation or on order.

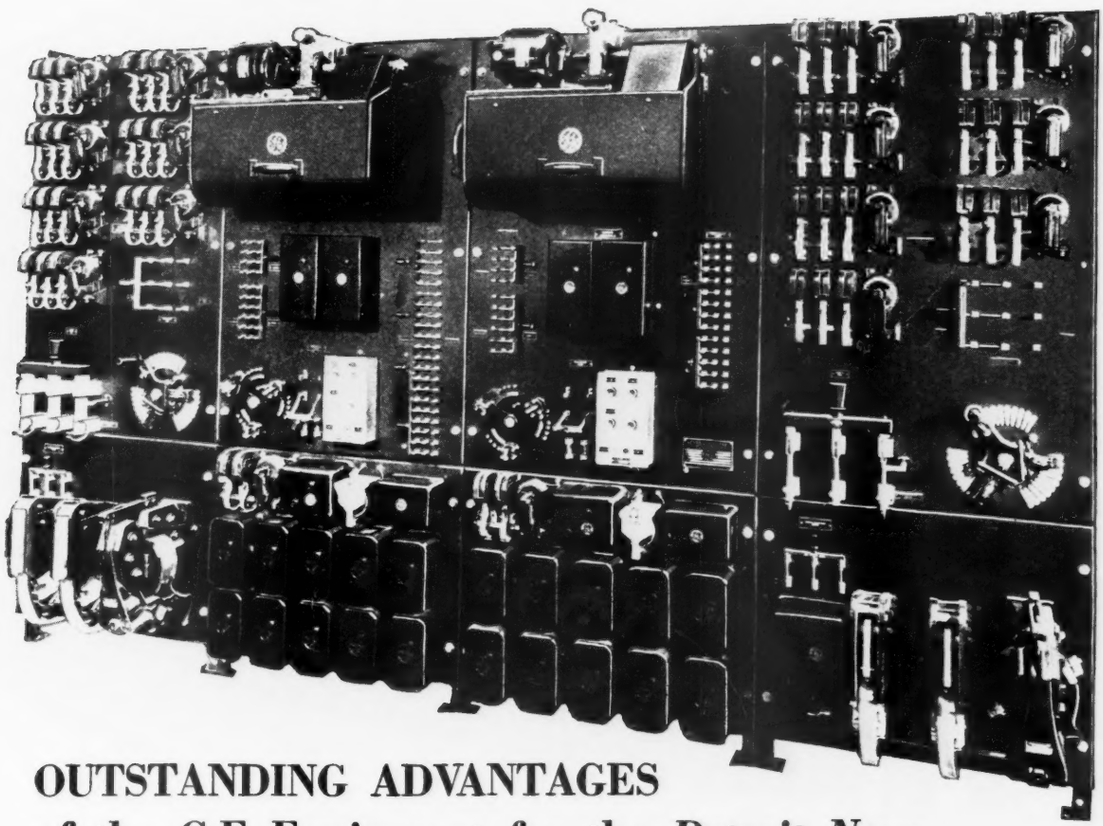
For every newspaper press, with either a-c. or d-c. power supply, General Electric equipment offers important advantages in superior performance, economy of operation, and long life. Why not investigate? Just call or write the nearest G-E office. Your inquiries will receive prompt attention. General Electric, Schenectady, N. Y.

General Electric manufactures a complete line of equipment—press drive systems, paper-break detectors, electric heating devices, and other apparatus—for every requirement of the newspaper industry.

G-E 150-hp. double-motor a-c. printing-press drive, equipped with Thrustor brake. Motor-driven oil pump supplies positive lubrication for chain drive



with a NEW Development and Control Systems



G-E contactor-type control for two 150-hp. double-motor a-c. press drives; assures smooth acceleration, gives long service at low maintenance

OUTSTANDING ADVANTAGES of the G-E Equipment for the *Detroit News*

1. Two-speed Motors for Greater Economy. Two peaks of motor efficiency—one at maximum speed and one at three-quarters speed—are provided by two windings in the main-drive motors. If the press is operated at 75-per-cent speed or less, the motors are operated on the low-speed winding, which materially increases motor efficiency at reduced press speeds and thus reduces power costs.

2. Contactor-type Controls Assure Smooth Acceleration and Give Long Service. The General Electric contactor control—used on all G-E alternating-current equipments of more than 100-hp.—is essential to absolutely uniform acceleration over the entire operating-speed range, and gives **equal speed changes per step of control.** In addition, the G-E contactor control gives extra years of dependable service with a minimum of maintenance.

3. Enclosed, Ventilated Resistors Reduce Installation Costs. The enclosed, ventilated construction of the speed-regulating resistors for this installation makes them smaller and more compact than conventional resistors. The result is a saving of 50 per cent in installation space. Furthermore, the installation is simplified, and the cost of installation is less.

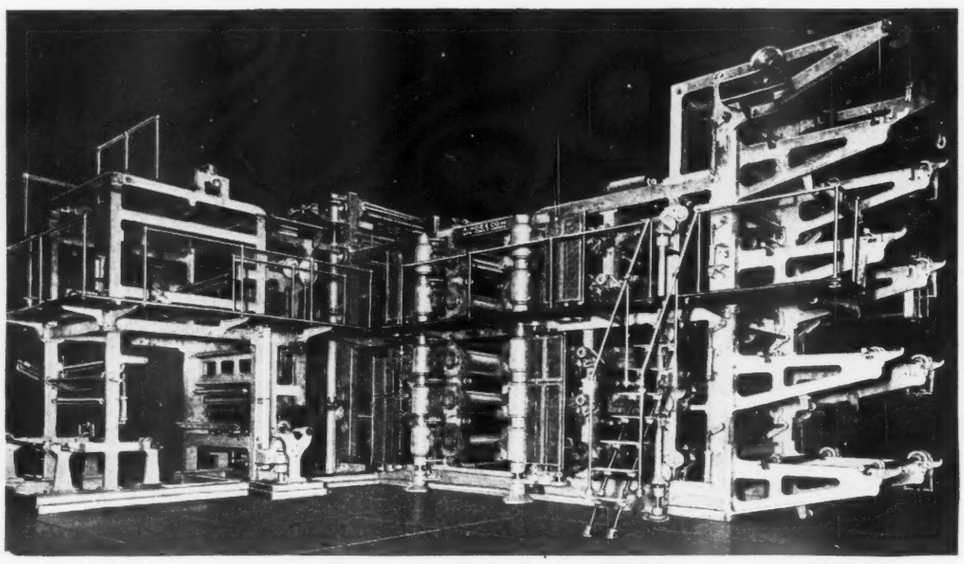
By selecting General Electric double-motor a-c. drives for this installation, the *News* will also save materially on the original cost of its equipment as compared with other types. A-c. drives make it unnecessary to purchase expensive conversion apparatus.

080-54

GENERAL ELECTRIC

A New Super-Production Press

Combining Rotogravure and Multi-Color Typographical Printing



The First of its Kind in this Country — Recently Installed in the Plant of the Radio Guide, Chicago

This Hoe Press will print, fold, staple and deliver a total of 128 pages, with 16 in four colors, 16 in rotogravure and the balance in black and white at a running speed of 30,000 papers per hour. Bleed pages, double spreads and normal pages with diversified positions of color and gravure are provided for.

Quality printing at this high speed is assured by the use of the latest improved features such as automatic tensions, anti-friction bearings, helical, spur and spiral bevel gears, perfectly balanced solid forged steel cylinders with wide hardened bearers; special fountains for high speed gravure with hot air drying system; revolving turning bars, improved nip and tuck folding mechanism, high speed rotary stitcher and slow down deliveries.

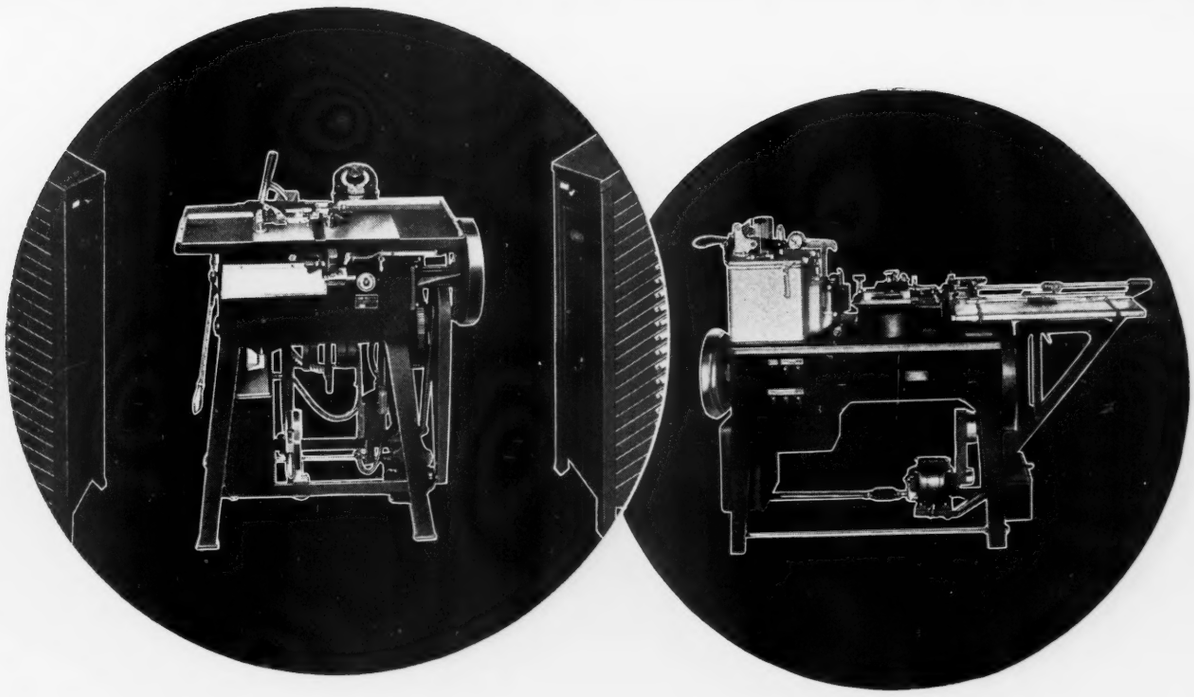
To obtain the full value of these features, Radio Guide has installed Hoe Precision Platemaking machinery, embodying all the latest Hoe improvements in this line.

Thus Hoe makes another contribution to the art of printing and publishing.

R. HOE & Co., Inc.

• General Offices •
138th St. and East River
• New York City •

BOSTON SAN FRANCISCO CHICAGO



The LUDLOW and the ELROD meet your most exacting requirements

The meeting in Detroit is for the purpose of discussing successful methods of newspaper production.

Consider at this time how the Ludlow contributes to economical, straight-line production in the composing room, how it eliminates worry regarding sinks under stereotyping pressure, how it gives the pressroom a clean, sharp, always-new typeface to print from.

Ask the executives making use of the Ludlow today about how the printed results from Ludlow display composition please both advertisers and readers.

The use of the Elrod lead, rule, slug and base caster has been extended during the past year, many large newspapers having added to their Elrod equipment especially to provide a wider range of material for their composing rooms. Its product, also, stands up under severe stereotyping pressure. Consider how this strip caster, simple in design and operation, can contribute to the efficiency and economy of your composing room.

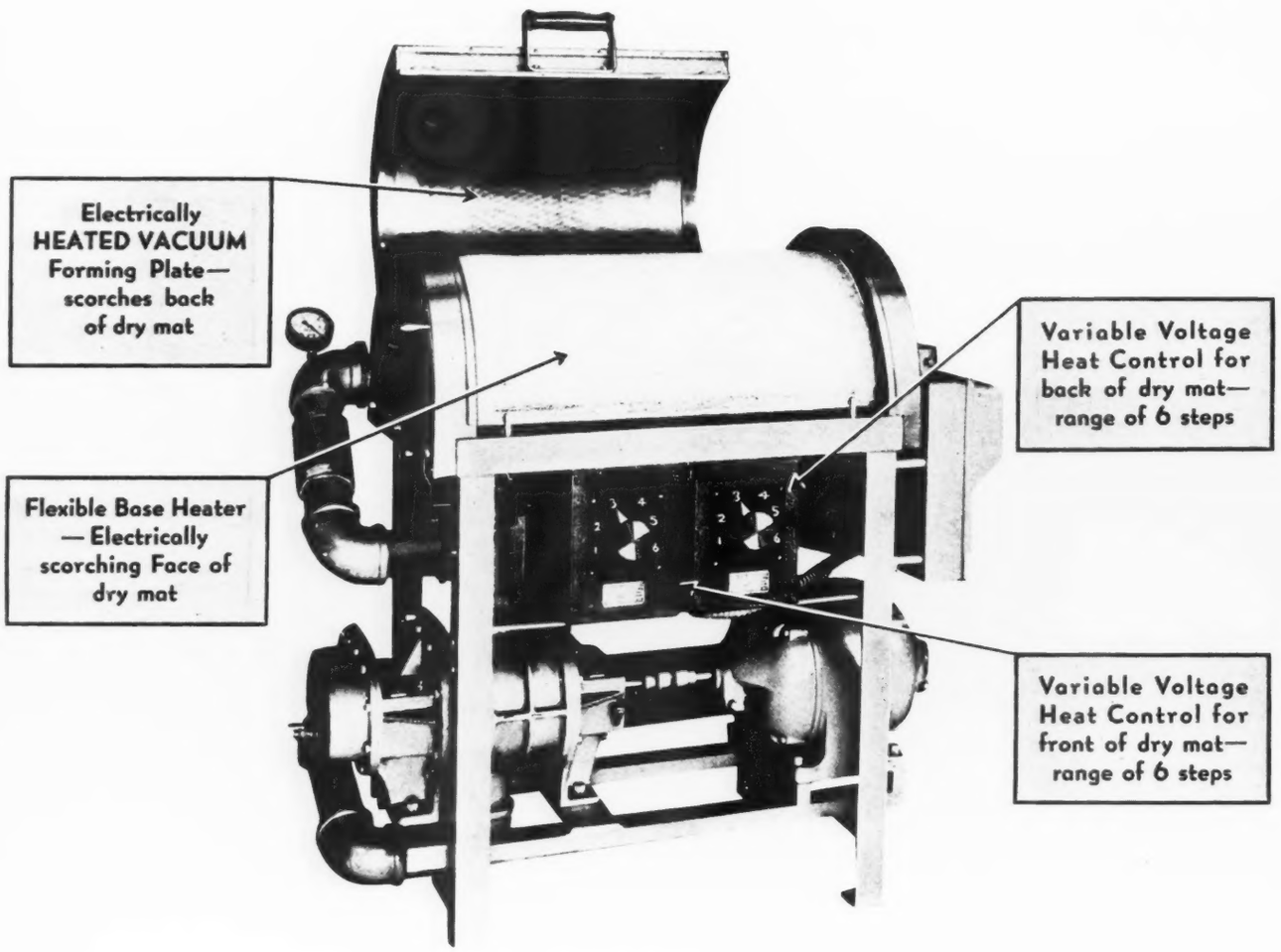
A Cordial Invitation

If you are not entirely familiar with the present-day efficiency of the Ludlow and Elrod, do pay us a visit at our factory in Chicago, either en route to the Convention or on your way home. We are confident you will find of interest a comprehensive demonstration of these two equipments. You will be most welcome. Just telephone Diversey 9660 on your arrival in Chicago, and we will arrange to call for you and bring you out to the factory.

Set in members of the Ludlow Karnak family

LUDLOW TYPOGRAPH COMPANY
2032 CLYBOURN AVENUE + + CHICAGO, ILLINOIS

HEAT ENGINEERING


Electrically HEATED VACUUM Forming Plate—scorches back of dry mat
Flexible Base Heater—Electrically scorching Face of dry mat
Variable Voltage Heat Control for back of dry mat—range of 6 steps
Variable Voltage Heat Control for front of dry mat—range of 6 steps

The above view of the Autoformer points briefly to **Electric Heat Engineering** accomplished in the design of this amazing machine. The Autoformer made **an abrupt forward leap** in applying **Heat To Both Sides** of a dry-mat at the same time—eliminating Primitive "Scorching" methods—which make Brittle the dry-mat fibers—and substituted Engineered Electric Heating which **Bone-Dries** the mat without "scorching" thus leaving the dry-mat fibers—full strength. The Value of The Autoformer is Tested by its Efficacy of Production.

STAHI NEWSPAPER SUPPLY COMPANY, INC.

LOS ANGELES, CALIFORNIA **PORTLAND, OREGON**

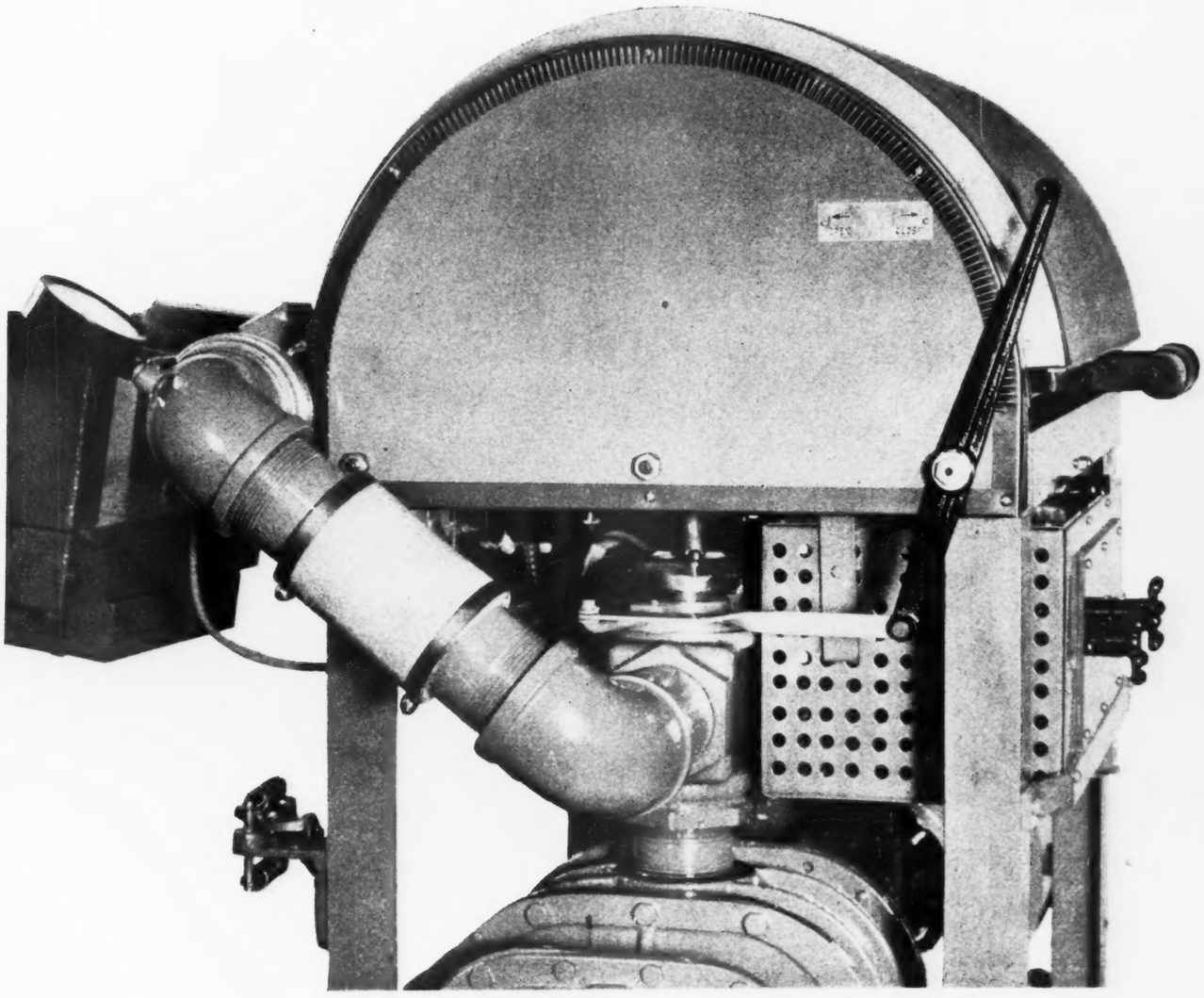
AGENCIES:

GOSS PRINTING PRESS COMPANY, Chicago, New York, San Francisco
WOOD FLONG CORPORATION, Hoosick Falls, N. Y.
CERTIFIED DRY MAT CORPORATION, 342 Madison Avenue, New York
TORONTO TYPE FOUNDRY COMPANY, Toronto, Montreal, Winnipeg, Canada

South American Agents:
A. M. CARNEIRO & COMPANY, 152 West 42nd Street, New York

European Manufacturers
GOSS PRINTING PRESS COMPANY of London, England

VACUUM ENGINEERING



A close up view of the **Vacuum** connections between the Vacuum Chamber and the Vacuum Pump, on the **Stahi Autoformer,** disclosing the Hand Vacuum Control which sets the exact Vacuum required for dry-mats of any manufacture and with any moisture content—producing **Uniform Casting Levels** on dry-mats in a minimum of time—which produce printing plates with **Uniform Printing Levels**—so essential to Quality Printing and so essential to Reducing Production Costs. 74 Newspapers, operating **Autoformers** in this and foreign countries, can testify to the efficiency of the highly engineered Vacuum System.

STAHI NEWSPAPER SUPPLY COMPANY, INC.

LOS ANGELES, CALIFORNIA **PORTLAND, OREGON**

AGENCIES:

GOSS PRINTING PRESS COMPANY, Chicago, New York, San Francisco
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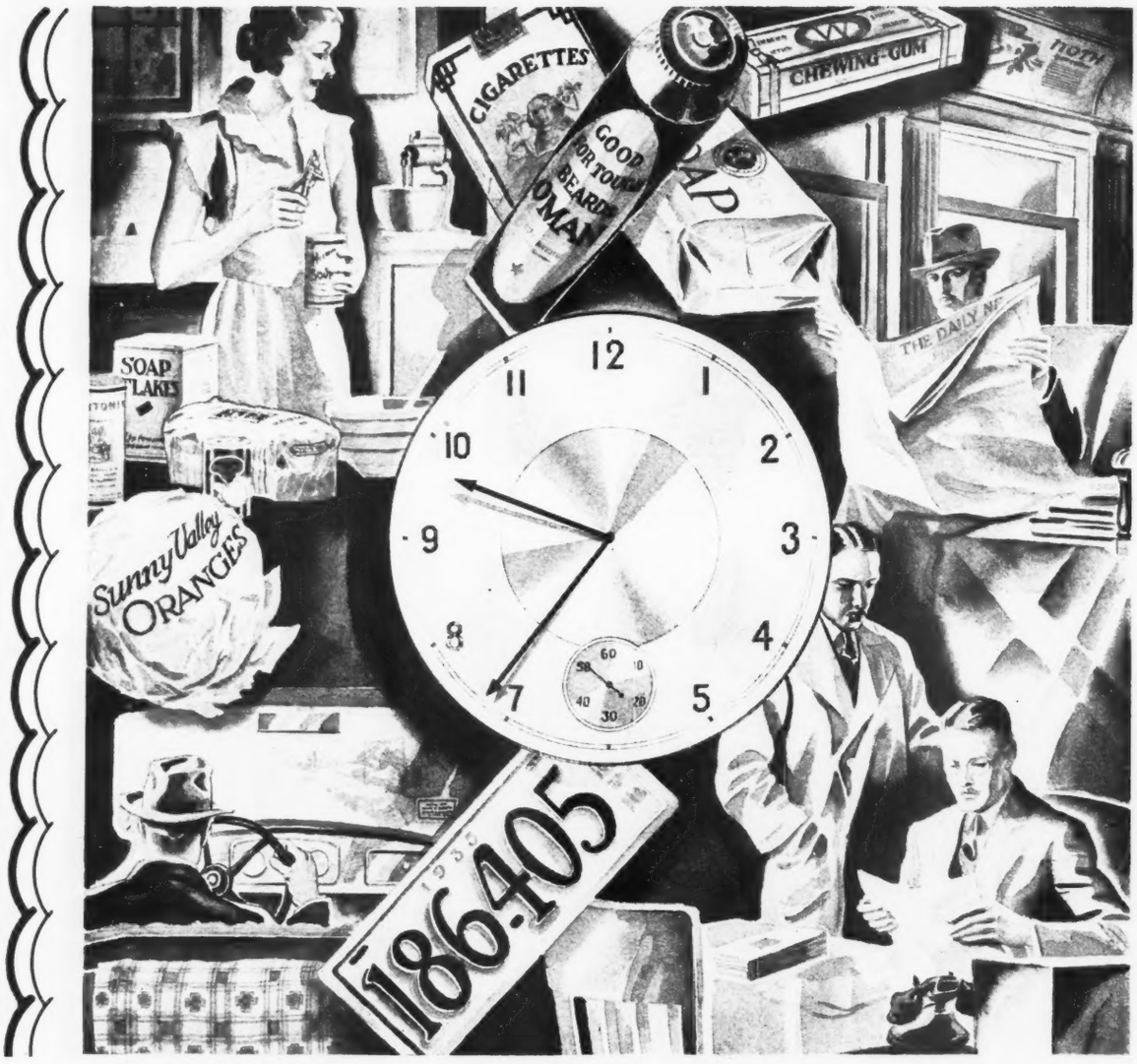


Every Hour of the Day!

Day after day there are in evidence visible specimens of lithography and printing produced with the aid of Ideal Rollers. This company takes pride in the scientific work it has accomplished in developing more than four hundred types and formulas of rollers.

The far-reaching lines of industry served by specially developed roller materials cover all walks and phases of life, at all hours of the day, when eye appeal in the varying natural and artificial lights must be considered.

In the home, the family medicine chest and the kitchen cabinet reveal a wide array of colorful labels and cartons that owe much of their attractiveness to the manner in which Ideal Rollers have applied the various hues of ink.

In the office, business forms and advertising matter bear further testimony of the importance of proper ink distribution by Ideal Rollers.

In the field of recreation, automobiles possess beautiful wood veneer imitations and license plates printed by special processes with Ideal Rollers designed for reproduction on metal.

In moments of relaxation, when the reading hour is at hand, newspapers, magazines and books demonstrate the need of Ideal Rollers in assuring legible type and clear illustrations in perfect register and full color.

There is an Ideal custom-built roller to serve your specific purpose. Simply present your requirements so that an efficient representative of this company can advise you.

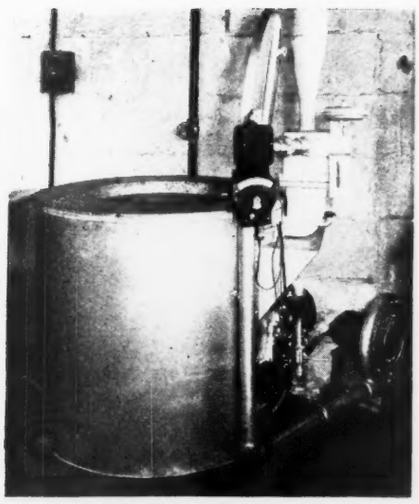
IDEAL ROLLER & MANUFACTURING COMPANY

CHICAGO
NEW YORK

Convenient Sales and Service Offices located in all principal cities

ENSIGN-REYNOLDS DUAL HEATED STEREOTYPE FURNACES INCREASE EFFICIENCY AND CUT COSTS

We don't ask you to take our word for it. The following plants have installed Ensign-Reynolds Furnaces and are willing to answer inquiries about their experience with them. We gladly refer you to them.



2500-lb Dual Heated Stereotype Furnace

WESTERN NEWSPAPER UNION
304 East 45th Street, New York City
has 2500-lb Straight Immersion Heated Furnace

•

A. E. MUNYER ELECTROTYPE CO., Inc.
60 Broadway, Brooklyn, New York
has 2500-lb Dual Heated Stereotype Furnace

•

THE CHARLES SCHWEINLER PRESS
405 Hudson Street, New York City
has 3000-lb Dual Heated Stereotype Furnace

•

NEW YORK LAW JOURNAL
9-15 Murray Street, New York City
has 5000-lb Dual Heated Stereotype Furnace

•

NEW YORKER STAATS-HEROLD
22 North William Street, New York City
has 8000-lb Dual Heated Stereotype Furnace

•

BRONX HOME NEWS
373 East 148th Street, New York City
has 16000-lb Dual Heated Stereotype Furnace

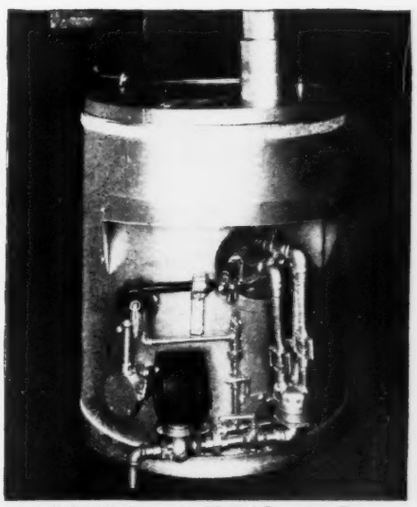
•

N. Y. AMERICAN AND JOURNAL
210 South Street, New York City
has 20000-lb Dual Heated Stereotype Furnace

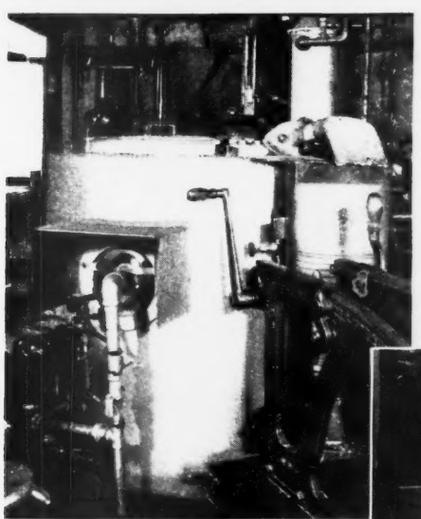
•

CRESSET ELECTROTYPE COMPANY
110 Greenwich Street, New York City
has No. 6 Dual Heated Electrotype Furnace

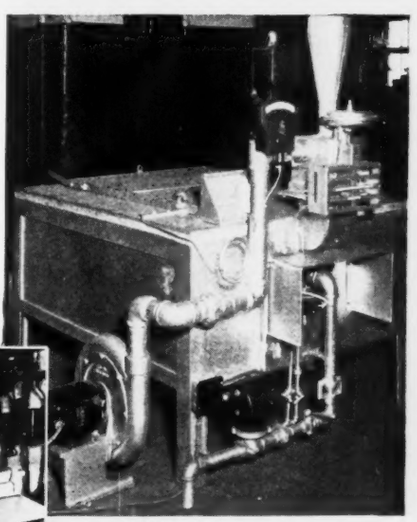
ENSIGN-REYNOLDS · INC.
4 IRVING PLACE · NEW YORK, N. Y.



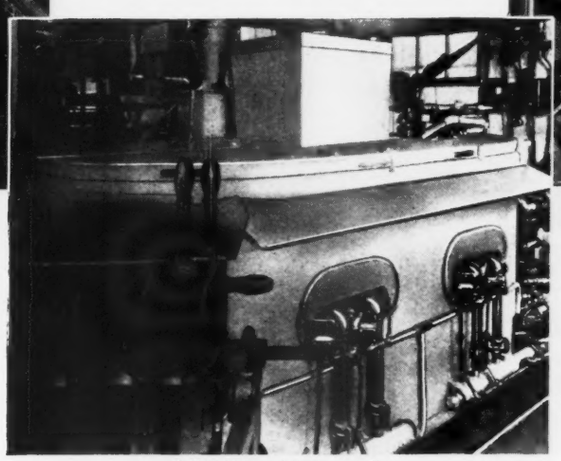
2500-lb Straight Immersion Heated Stereotype Furnace



8000-lb Dual Heated Stereotype Furnace



Dual Heated Electrotype Furnace



16000-lb Dual Heated Stereotype Furnace

Production Aids *for* Mechanical Executives

The E. A. Booth Rubber Company is appreciative of the constantly increasing confidence in Booth Products extended by mechanical executives in all parts of the country. If you are not now a user of Booth Products we can help your organization to do better work.

Printers' ZINK Cut Cement

For fastening zinc etchings, copper halftones, electrotypes, shell casts or composition cuts to wood or metal base. Economical to use because it is put up in an efficient tube with applicator nozzle. Has the strength of a tiger's paw. Eliminates messy and wasteful open-top jars or pots. Does not harden in the tube.

50 cents per large tube; $5.00 per dozen tubes, lots of 6 dozen, $4.00 per dozen tubes; gross lots, $3.00 per dozen tubes.

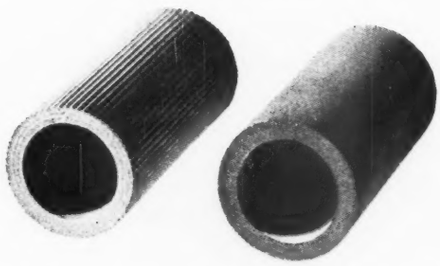
Cement Solvent—If necessary to clean cuts after use, the cement may be removed with a non-inflammable solution consisting of two-thirds carbon tetrachloride and one-third benzol, which can be secured at any drug store.

Engravers' Concentrated Rubber Cement

When mixed four-to-one with benzol, this cement produces 25 gallons of stripping solution ready for use at a cost of 62 cents per gallon. It is uniform in density and quality. Dries evenly and quickly.

$7.50 per 5-gallon can.

BOOTH'S Green Keyboard Rubber Rolls



Booth Rolls are made from *non-blooming* stock, which means that in ageing, the rolls do not turn white from the sulphurs used in compounding rubber. Consequently, keyboard cams and cam bearings cannot become fouled in any way by these rolls. Booth Rolls are of constant diameter throughout their length. They are compounded for toughness to resist the wearing action of keyboard cams.

Booth Rolls are made from as much pure gum rubber as is possible in order to hold original *true diameter* and *resiliency* during the life of the roll.

Owing to the advancing rubber market, it has been necessary to increase the price of Booth's Green Keyboard Rubber Rolls. Rather than cheapen the quality to absorb the increased cost, we felt mechanical executives would prefer that we maintain the high standard of these rolls by increasing the price slightly.

Corrugated or Plain — as you choose.

$1.30 per pair; $7.00 per dozen; 55 cents each in lots of 100.

Other BOOTH Products

Rubber Acid Gloves for photoengravers.
Round and Flat Leather Belting.
Proof Press Rubber Impression Cylinder Rolls.
Fire Hose and Connections.
Line-Casting Machine Clutch Leather Facings.

The E. A. BOOTH RUBBER CO.

364 ROCKEFELLER BLDG. **CLEVELAND, OHIO**

MACHINES are like MEN... They Are Known By The Company They Keep!

For Instance:

★ **Twenty-three out of twenty-four** daily newspapers in the "50,000 circulation or over" class which reached the semi-finals in the recent competition for the Francis Wayland Ayer Cup, are operating Monotypes, and twenty-one of them use Monotype-cast type for display composition.

THE LIST IS IMPRESSIVE

FIRST PLACE

New York Times—
One Monotype Giant Caster, One Type-&-Rule Caster, Five Keyboards, Six Composition Casters, Three Material Making Machines.

SECOND PLACE

New York Herald-Tribune—
One Monotype Giant Caster, Two Type-&-Rule Casters, One Material Making Machine, One Monotype-Thompson Type Caster.

THIRD PLACE

Washington Evening Star—
One Monotype Giant Caster, One Type-&-Rule Caster, Three Material Making Machines.

[The above dailies were placed in the final judging as shown. The other twenty are arranged alphabetically in the adjoining columns.]

Atlanta Constitution—
One Monotype Giant Caster, Two Type-&-Rule Casters, Two Material Making Machines.

Baltimore Sun—
One Monotype Giant Caster, Two Type &-Rule Casters, Seven Keyboards, Seven Composition Casters, Two Material Making Machines.

Birmingham News—
One Monotype Type-&-Rule Caster, Two Material Making Machines.

Brooklyn Daily Eagle—
One Monotype Type-&-Rule Caster, One Material Making Machine.

Chicago Daily News—
One Monotype Giant Caster, One Monotype-Thompson Type Caster, One Type-&-Rule Caster, Two Material Making Machines.

Christian Science Monitor— (Boston)
One Monotype-Thompson Type Caster, One Material Making Machine.

Cincinnati Enquirer—
One Monotype Giant Caster, Two Type-&-Rule Casters, Two Material Making Machines.

Columbus Citizen—
One Monotype Giant Caster, One Material Making Machine.

Detroit Free Press—
One Monotype Giant Caster, Three Type-&-Rule Casters, One Material Making Machine.

Milwaukee Journal—
Two Monotype Giant Casters, One Type-&-Rule Caster, Two Keyboards, Two Composition Casters, Two Material Making Machines.

Newark Evening News—
One Monotype Keyboard, One Composition and Display Type Caster, Two Material Making Machines.

[Set in Monotype Stymie Family]

New Orleans Times-Picayune—
One Monotype Giant Caster, Two Material Making Machines.

New York Sun—
One Monotype Giant Caster, One Type-&-Rule Caster, Four Keyboards, Six Composition Casters, Three Material Making Machines.

Philadelphia Inquirer—
One Monotype Giant Caster, Four Type-&-Rule Casters, Three Material Making Machines.

Pittsburgh Press—
One Monotype Giant Caster, One Type-&-Rule Caster, Two Material Making Machines.

Richmond Times-Dispatch—
One Monotype Giant Caster, One Type-&-Rule Caster, Two Material Making Machines.

St. Louis Post Dispatch—
One Monotype Giant Caster, One Type-&-Rule Caster, Two Material Making Machines.

Tulsa Tribune—
One Monotype Giant Caster, Two Material Making Machines.

Washington Daily News—
Two Monotype Material Makers.

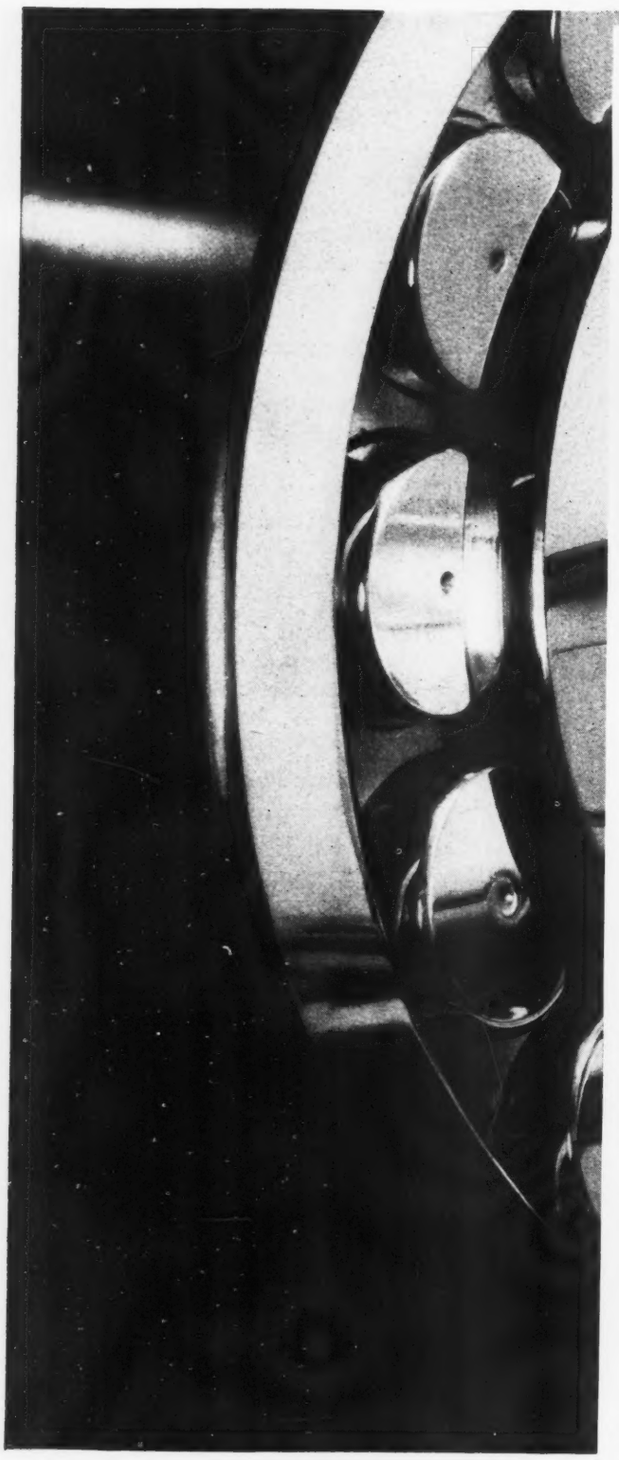
Washington Post—
One Monotype Type-&-Rule Caster, Two Material Making Machines.

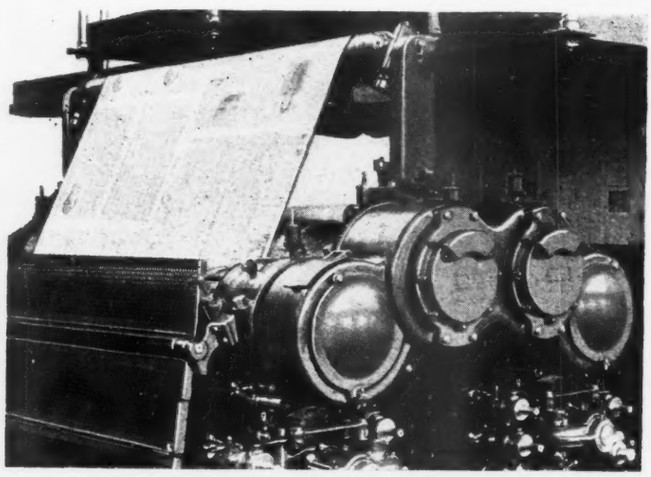
LANSTON MONOTYPE Machine Company

24th at Locust St., Philadelphia, Pa.

PRESSES THAT RUN AT HIGH SPEEDS

NEED SKF BEARING DEPENDABILITY





Every SKF Spherical Roller Bearing that goes into a newspaper press is built to do one thing well... *perform smoothly at all times.* It's built to give dependability at speeds from 40,000 to 65,000 copies per hour. It's built to close tolerances . . . to operate entirely without play . . . to assure low starting torque, quicker pick-up, and closer adjustments! *Its inherent aligning feature is exclusively* SKF!

And whether the press runs for only a few hours or through day and night, SKF needs no attention . . . no adjustment . . . and requires only infrequent lubrication. It insures good printing without cylinder jump, vibration, web breakage, bearing failure, or spoiled product due to lubricant leakage.

Little wonder SKF, that pioneered in the printing industry in 1915, is the leader today! It's the result of years of closely following the anti-friction trends of industry! Specify SKF for printing equipment of all kinds!

SKF INDUSTRIES, INC., Front St. & Erie Ave. Philadelphia, Pa.

3447

SKF

ROLLER BEARINGS

THE NEW Unitubular DUPLEX

for COLOR PRINTING in Newspapers — Comics — Specialty Printing

The UNITUBULAR Unit

Open Unit Design

Color on any Unit

Added Color Anytime

Roller and Ball Bearings

Efficiency

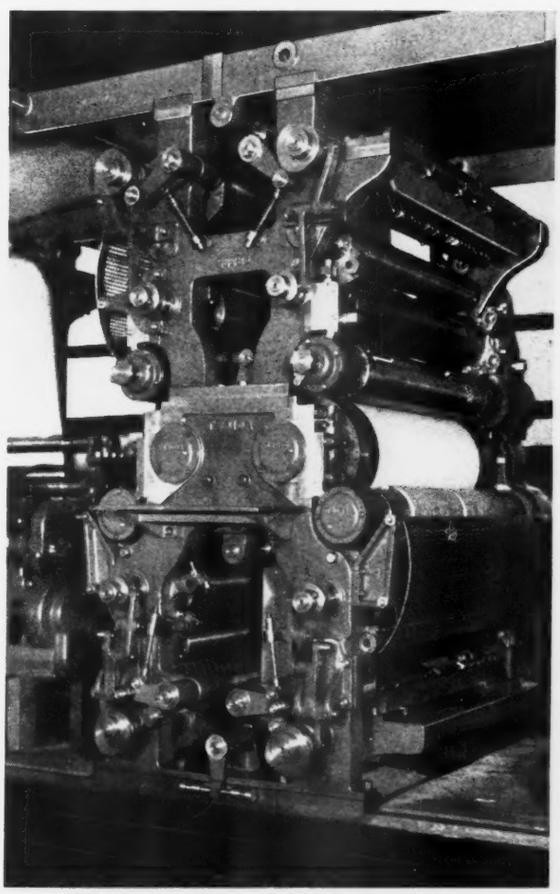
Economy

Greater Productive Speed than any other Press in Its Field

50% Improved Ink Distribution

Versatility

Sectional Products



Unit as illustrated above has color cylinder equipment for printing color on every page

One Publisher writes:

"The press has been viewed by executives of local dailies and *comment has been all in its favor.*

"The publisher of one said, *'We need four times as much press to duplicate what you can do on a machine that small.'*

"The color sets rapidly and does not lose register on increased speed. We have *not had to adjust for register once after it was set."*

For full Information, Descriptions and Details of Construction, Write to

THE DUPLEX PRINTING PRESS CO.

BATTLE CREEK, MICHIGAN

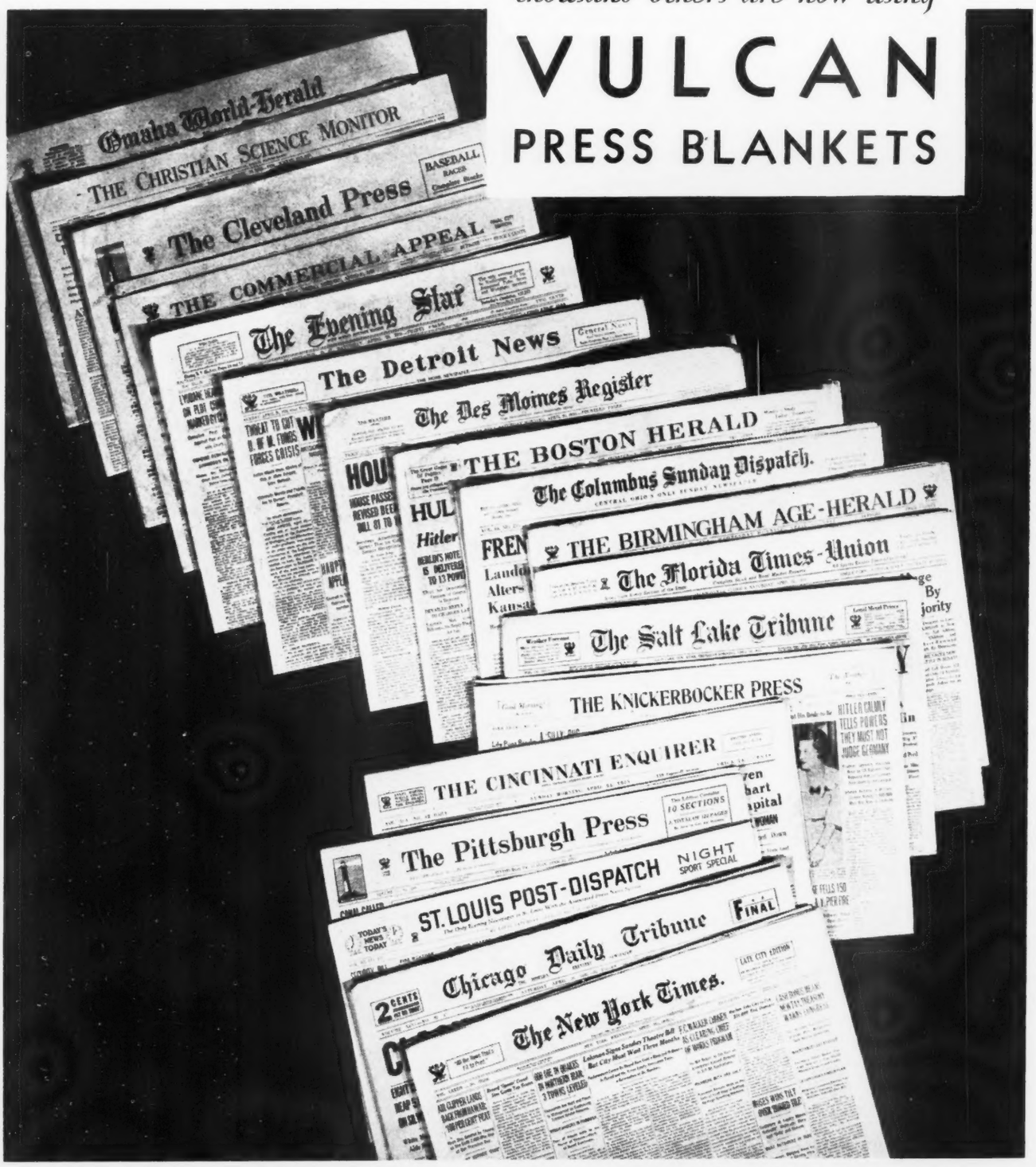
TIMES BUILDING
NEW YORK CITY

77 W. WASHINGTON ST.
CHICAGO

DE YOUNG BUILDING
SAN FRANCISCO

. . . . . these newspapers and a thousand others are now using

VULCAN
PRESS BLANKETS



VULCAN PROOFING COMPANY

FIRST AVENUE AND FIFTY-EIGHTH STREET, BROOKLYN, N. Y.

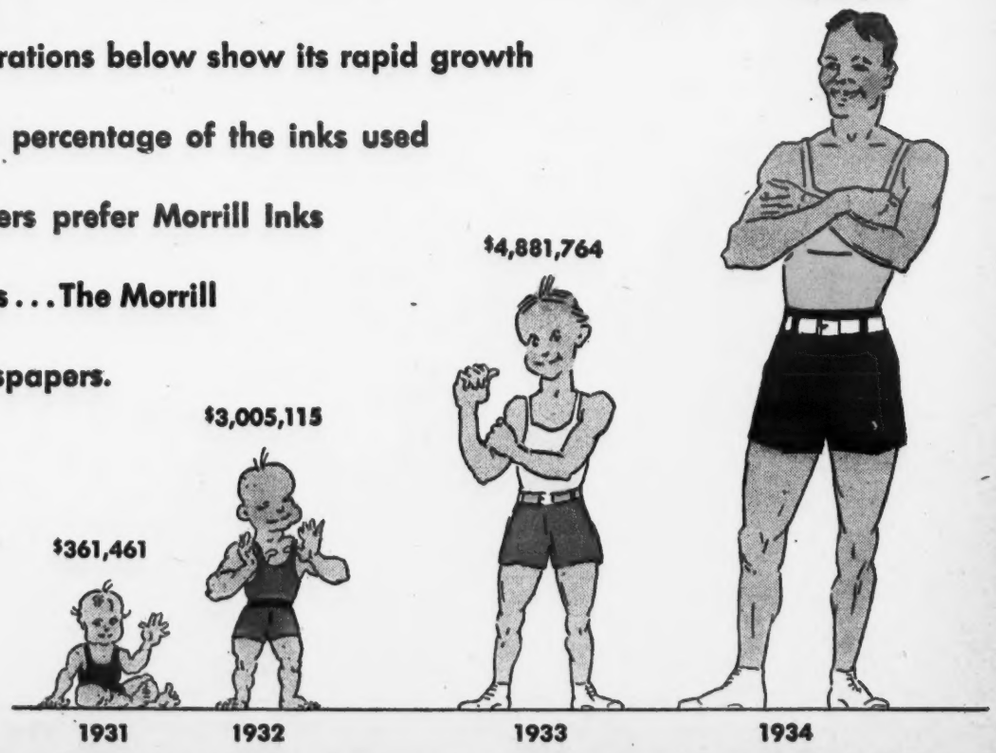
Pacific Coast: Ralph Leber Co., Inc., 426 Polson Building, Seattle, Wash.

GIVE YOUR CUSTOMER WHAT HE WANTS . . .

And Your Business Will Grow

TOM, HOW COME YOU ALWAYS GET SUCH CLEAN SHAVES? MY FACE HURTS LIKE BLAZES WHEN I SHAVE CLOSE
LIFEBUOY SHAVING CREAM GETS ALL THE CREDIT
REMEMBER, I'VE GOT WHISKERS LIKE WIRE AND A MIGHTY TENDER FACE
LIFEBUOY'S EXTRA-MOIST LATHER IS JUST MADE FOR THAT COMBINATION, TRY IT
THIS LATHER SOFTENS MY BEARD LIKE NOBODY'S BUSINESS. SOOTHES MY SKIN, TOO. AND WHAT A SHAVE!
TOM YOU WERE RIGHT. WITH LIFEBUOY I CAN SHAVE CLEAN AND CLOSE... SKIN NEVER GETS SORE, EITHER
THAT'S WHAT EVERYBODY SAYS, ONCE THEY TRY LIFEBUOY

COMIC ADVERTISING IS AN EXAMPLE... Illustrations below show its rapid growth ...The Geo. H. Morrill Company supplies a large percentage of the inks used for this class of printing... Publishers and Printers prefer Morrill Inks because they are especially adapted to their needs... The Morrill Company leads in the development of inks for newspapers.



GEO. H. MORRILL CO.

Division General Printing Ink Corp.

100 SIXTH AVENUE · NEW YORK, N. Y.

Factories: Norwood, Mass.; Tacony, Philadelphia, Pa.; Chicago, Ill.; San Francisco, Calif.
Branches: Boston, New York, Philadelphia, Chicago, Detroit, St. Louis, Ft. Worth, Minneapolis, San Francisco, Los Angeles, Seattle.

This insert was printed with standard Web Press Colors and Cylinder News Black.

Associate Member
National Printing Equipment
Association, Inc.

FOR JUNE 1935
VOLUME 50 Number 3

Printing EQUIPMENT Engineer

Trade-Mark Registered U. S. Pat. Office

Published by Don Will
Edited by Mac Sinclair

A Technical Publication for Mechanical Executives Responsible for Printing Production, Equipment and Supplies in the Commercial, Magazine, Private Plant and Daily Newspaper Fields.

Established 1910

CCA
Member Controlled Circulation Audit

Share Your Knowledge With Others

The key men in your organization will appreciate looking over the pages of this magazine. Perhaps one of them will be able to put some particular technical idea to good use in your plant.

Place a check mark in each square for attention of the department head or assistant whom you wish to look over special articles in this issue.

- ☐ *Production Manager*
- ☐ *Mechanical Superintendent*
- ☐ *Composing Room Superintendent*
- ☐ *Chief Composing Room Machinist*
- ☐ *Monotype Department*
- ☐ *Photo Engraving Department*
- ☐ *Foreman Lithographing Department*
- ☐ *Superintendent Stereotype Foundry*
- ☐ *Superintendent Electrotype Department*
- ☐ *Superintendent Press Room*
- ☐ *Bindery Foreman*
- ☐ *Manager*
- ☐ *Purchasing Agent*

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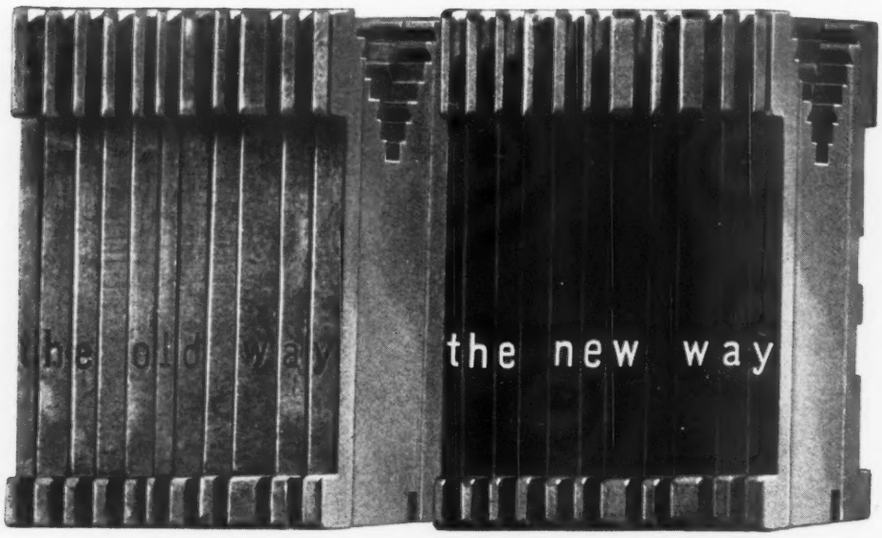


Black and White Contrast Reference Marks reduce errors and prevent eyestrain

Errors in line composing machine composition are costly. Of course some errors are unavoidable, but a large proportion of typographical errors — transpositions, wrong letters, missing letters, and double letters — can be prevented. Fewer errors mean less non-productive time — less time wasted on proofs and correction lines and all the extra handling which these involve.

The Black and White process reduces errors by making them visible. Here is what this means to newspapers:

1. Machine time available for productive composition is increased more than four per cent.

2. Correction lines handled by floor men are reduced by thirty-three per cent.

3. Forty per cent more OK takes can be placed in page forms without waiting for corrections.

4. Railroaded news matter contains at least fifty per cent fewer errors of the kinds apparent to average readers.

5. On ad composition contrast matrices save more than forty-two per cent of all errors in original composition.

6. Incidentally, your machinist would like our service because we *clean* mats when we process them.

25% FEWER ERRORS

GUARANTEED

How can you lose?

The foregoing figures are not merely claims, they are based upon painstaking surveys made in newspaper plants throughout the country. Let us send you one of these surveys covering a plant of about your size. Write to us now, while you have it in mind, and please mention how many line composing machines you are using.

MATRIX CONTRAST CORPORATION

Empire State Building, New York, N. Y.

SOLE LICENSEES OF THE PERCY L. HILL MATRIX CONTRAST PATENTS Nos. 1,466,437 and 1,796,023

Printers

Generally, Shown To Be Good Credit Risks

Excerpt from Annual Report of President Harvey D. Best which was presented to the annual stockholders meeting at Alexandria, Va., on May 2.

The outstanding point in the period through which we have been passing has been the courageous and intelligent effort our customers have made to adapt themselves to new conditions. The stability of the printing industry is well shown by the fact that during these six years the total losses we have been obliged to charge off for bad debts, including the losses on the recovery and resale of equipment, amount to only 1.62% of sales.

There is an all too prevalent impression, which we certainly do not share, that printers are not a good credit risk. Selling machinery on deferred payments, we are in effect bankers to printers, and the knowledge of printers' credit is a vital point in our operations. It is our experience that printers rank very high as safe credit risks. An analysis of printers' problems makes this point clear. Starting in business for himself, the printer must thoroughly know the printing business, for printing is very largely a personal service industry. The printer must not only know the requirements of his customers, but he must also know how to meet these requirements, maintaining quality at prices that will enable him to profitably hold his customers' work. With very few exceptions, every job produced in a printing office is made to order. The printer takes no inventory loss or losses due to changes in styles.

The problem of the Printing Industry today is to obtain additional working capital to finance, with the improvement in business, increasing accounts receivable, payroll and work-in-process.

Visit To Ink Factory

The Howard Flint Ink Co., with main factory and general offices located in Detroit, invites all those attending the A. N. P. A. Mechanical Conference to visit the factory. A. A. McNab, sales manager, says: "Inquire at our rooms at the Statler Hotel or telephone Lafayette 6100 and arrangements can be made to visit the factory at your convenience. It will be a real pleasure to have you."

Conference

A. N. P. A. Mechanical Program Marked by Variety of Subjects

By STAFF WRITER

THE ninth annual A. N. P. A. Mechanical Conference, as was announced in the April and May issues of *Printing* EQUIPMENT *Engineer*, will be held in Detroit at the Hotel Statler, on Monday, Tuesday and Wednesday, May 27, 28 and 29. A variety of topics occupies the program. The wide variety of subjects should satisfy most every newspaper mechanical executive who plans to attend.

A pleasing feature of the program, as at the preceding conference, is that small-plant problems have a generous part in the proceedings. This should encourage attendance at the conference by executives from small plants who may have felt that problems peculiar to the size of their plants were not being given attention at previous meetings.

DEPARTMENTAL MEETINGS

In order to make more flexible the handling of the main sessions, separate departmental meetings have been arranged for Monday and Tuesday evenings. On Monday evening at 8 o'clock, the composing room and stereotyping executives will have meetings. On Tuesday evening at 8 o'clock the pressmen and photo-engravers will conduct meetings to discuss problems of their crafts. Important matters which may develop at these sessions will be reported to the main conference sessions the following day by observers appointed for the purpose.

A REAL NOVELTY

A real novelty will be the discussion Tuesday afternoon by John A. Burke, production manager of the Gannett Newspapers, on "What Our Mechanical Superintendents Learned by Exchanging Jobs." Recently, Mr. Burke arranged to have the various

mechanical superintendents visit other plants in the Group for a few days with a view of studying the plant which was visited to make suggestions as to how plant operation might be improved and to adopt production helps from the visited plants in case they were applicable to the "home" plant. This, no doubt, is the first time such a procedure has been carried out and the results as told by Mr. Burke should be informative to the newspaper mechanical executive personnel present at the Detroit conference.

NEW AND UNUSUAL ITEMS

Many items of a new and unusual nature have been given a place on the program. Some of these represent the inventive endeavor of mechanical executives to solve some production problems. Others are items which have been placed on the market and no doubt will be widely accepted, especially where certain conditions demand correction.

PROGRAM

The program is as follows:

Monday—9:45 A. M.—Safety Session

Safety in Newspaper Plants—P. H. Johnson, District Supervising Engineer, The Travelers Insurance Co., Hartford, Conn.

John J. Shea, Production Manager, Worcester (Mass.) *Telegram and Gazette.*

B. F. Garrity, Mechanical Superintendent, Hartford (Conn.) *Times.*

Discussion.

Monday—2:00 P. M.—Photoengraving Session

How to Get the Best Results from Stripfilm—W. W. Warfel, Maurice Joyce Engraving Co., Washington, D. C.

Discussion.

Photoengraving by Small Newspapers—Russell B. Miller, Mechanical Superintendent, Bloomington (Ill.) *Pantagraph.*

C. L. Shrecengost, Pressman, Newport News (Va.) *Press and Times-Herald.*

Discussion.

Roll-Up Method of Etching Halftones—Ernest Scherer, Photoengraver, Minneapolis (Minn.) *Tribune.*

Discussion.

Monday—8:00 P. M.

Composing Room Meeting

Stereotypers' Meeting

Tuesday—9:30 A. M.—Stereotyping Session

How to Get the Best Results from Type Metals—John J. Nickels, Eastern Manager, E. W. Blatchford Co.

Discussion.

What Immersion Gas Burners Have Done for the Jersey Journal—John J. Horton, Plant Manager, Jersey *Journal,* Jersey City, N. J.

Discussion.

Tuesday—2:00 P. M.—Composing Room Session

What Our Mechanical Superintendents Learned by Exchanging Jobs—John A. Burke, Production Manager, Gannett Newspapers.

Discussion.

How to Handle Double Truck Ads—Geo. R. Bolton, Composing Room Superintendent, Joliet (Ill.) *Herald News.*

Discussion.

Unit Measurement Mats for Economical Head Setting, Saving Water in the Composing Room, Utility of Gummed Cardboard Letters—John D. MacIntosh, Mechanical Superintendent, Newburgh (N. Y.) *News.*

Discussion.

Work Indicator for Typesetting Machines—D. H. Parker, Mechanical Superintendent, Montreal *Star.*

Tuesday—8:00 P. M.

Pressmen's Meeting.

Photoengravers' Meeting.

Wednesday—9:30 A. M.—Pressroom Session

Color Printing with Limited Equipment—Geo. R. Bolton, Composing Room Superintendent, Joliet (Ill.) *Herald-News.*

Discussion.

Ink Misting, Its Cause and Remedy—W. T. Diefenbach, Chief Chemist, J. M. Huber, Inc.

Economy of 38-inch Rolls on Tubular Press—Lester Yeager, Pressroom Foreman, Marion (O.) *Star.*

Discussion.

Experience with a Rewinder—Chas. H. Ruth, Superintendent, Washington *Star.*

Discussion.

Unique Display

Manager Walter E. Wines of the A. N. P. A. Mechanical Department states that approximately one hundred and fifty newspapers and questionnaires have been received for the display which is to be made at the Detroit Mechanical Conference. The questionnaires will reveal technical information as well as the kinds of equipment and materials used in producing the respective newspapers in the display. Among these will be represented the papers receiving recognition in the 1935 Ayer Awards.

Attractive Mailing Folder

An attractive folder has been designed by Arthur E. Theobald and printed by Munroe & Southworth, Chicago, for The Ideal Roller & Manufacturing Company. The folder is printed in two colors and black. The designer and printer, while executing the folder in modernistic fashion, provided an easily read type face to convey Ideal's message.

The folder describes the accurate product and gives technical information about the ten or more varieties of printers' rollers made by The Ideal Roller & Manufacturing Company from whom the folder may be secured or it can be had by addressing *Printing* EQUIPMENT *Engineer.*

Color Printing

In Newspapers Dependent Upon Sympathetic Technique

By H. L. Foster*

Mr. Foster shows how artist, Ben Day man and engraver in the future will recognize reproductive limitations of newsprint and printing equipment and will avoid certain things in preparing color advertising in order to enable the pressroom to do good work.

Generally speaking, color printing in newspapers has passed the first stage wherein a splash of color on the sheet is all that is asked or expected. A color splash has ceased to be a novelty. In many instances advertisers are demanding, and rightly so, that their merchandise be reproduced in exact colors and shades. The crudeness of the first attempts at printing newspaper color were excusable because of the pioneering aspect of the endeavor. With radio and other competitive agencies of the newspaper developing, sufficient pressure was brought to bear upon the publisher and his mechanical staff to do something to offset the new competition.

Like any other manufacturing or reproductive process, newspaper color plates must be prepared with due regard for the subsequent processes. In planning a color page, the layout artist must avoid using a technique that is going to handicap the mechanical departments, thereby detracting from the excellence of the printed product. This observation has special reference to stereotyping and presswork. In the pressroom, time limitations and the inadaptability of newspaper press equipment to makeready manipulation, as we know it in the commercial printing plant, make it imperative that these considerations by the artist and Ben Day man be recognized. When once properly worked out, there isn't any reason for believing that newspaper color shouldn't be used by the advertiser in more generous quantity. In fact, I feel that the proper preparation of newspaper art copy with due regard for the mechanical limitations of newspaper printing equipment by artists and Ben Day men will contribute greatly to the general improvement of color printing. Due to the improved results that will follow this intelligent cooperation, a greater demand for color in the daily newspaper will be created. Most of the pressrooms in which color is now being printed produce very cerditable work if the artists, Ben Day men and engravers are sufficiently familiar with newspaper printing conditions to have prepared their plates intelligently. The present weakness in reproducing color in newspapers lies with artists and Ben Day men rather than with the mechanical departments.

When commercial artists in general have a complete understanding of the conditions under which newspapers are printed they will know better how to prepare copy so as to obtain the results they desire. They will realize that a solid in the press plate requires one hundred per cent of the ink absorbing qualities of newsprint paper, consequently they will not ask the pressroom to overprint the same spot with three heavy colors and expect the sheet to absorb all three of them. They will cut each color with Ben Day to its proper percentage of one hundred so as to give the artist the desired shade and still not flood the sheet in the pressroom. They will not use too much color on wash drawings but will hold them on the light side, even to the extent of using a flop, so that the color can come through. They will not try to print black type over a solid tint block, thereby mixing the black with the color and still expect the type to appear black with two full colors on the sheet. Last, but not least, they will avoid whenever possible, small or exposed spots of delicate screen that are subjected to the full set of the rollers and impression and are very liable to beat down and fill during the run.

In the Minneapolis *Journal* plant, instructions from the advertisers to run a color page or a series of color pages causes no special concern in our composing room, stereotype room or pressroom. These departments ask only a few hours earlier close to allow time for plate routing, checking and register. But, we *are* vitally concerned as to the technique the artists, the

*Mechanical Superintendent, The Minneapolis *Journal*, Minneapolis, Minn.

We Complied

Racine, Wis., April 4, 1935.

Printing Equipment *Engineer,*
Cleveland, Ohio.

Gentlemen: There is such a demand for your magazine throughout our mechanical departments that our night machinist, Joseph Stehlik, does not always get a copy to read. Would you be kind enough to put his name on your mailing list and address it here?

Yours truly,
The Journal-Times Company,
T. Jude, *Composing Room Foreman.*

engravers and the Ben Day men are following to get the desired effects and shades in their color schemes.

This aspect of the work is our chief worry, because a number of sad experiences have taught us that if the color has not been laid on the engraver's plates properly there is nothing we can do about it in the pressroom except to cut the color and print a weak, anemic-looking page or to run normal color and create a very objectionable offset and showthrough condition. On the other hand, if the color is properly laid to meet newsprint and high-speed press conditions a full flow of color on the sheet can be maintained and satisfactory printing is practically assured.

The method of handling such details as makeready in the composing room, control of mat shrinkage, creepage in molding, mat makeready, etc.,, in the stereotype room, registered moves and sheet control on the press are to a great extent standardized in most plants and need no comment.

One of the big problems facing pressrooms today is to carry a full flow of ink on heavy pages (either black or color) and at the same time avoid showthrough and offset difficulties.

When our layout artists realize this condition and also realize how hard the pressmen, ink and paper men are working to overcome it, I am confident they will stop asking our pressrooms to carry an impossible and unnecessary load of overprint color on the sheet.

Mutually Agreeable

Fitz of Fitz-Livecork mistook a competitor for one of his best customers at the New York A. N. P. A. meeting and invited him to lunch at the Waldorf. Joe is such a charming and entertaining gentleman that Fitz feels well repaid for the ten-dollar cost of the lunch.

Cut Cement Solvent

In some instances where cuts have been cemented to bases with Printers' Zink Cut Cement for printing or stereotyping purposes, it is desirable to separate the cuts from bases in order to remove the cement from the cuts in case the cuts are to be returned to the owner or are to be filed for future use.

A very good non-inflammable solvent for this purpose, states E. A. Booth, manager of The E. A. Booth Rubber Company, Cleveland, can be made by mixing in the desired quantity two-thirds by volume carbon tetrachloride with one-third by volume of benzol. This solution can be obtained from any drug store.

To use, immerse the cuts from which the cement is to be removed in the solution for a few seconds and agitate with an ordinary bristle brush or wipe the cuts with a wiping cloth saturated with the solution.

Craftsmen Convention Chairman

Indeed it looks as though the Cincinnati International Association of Printing House Craftsmen Convention will be in competent hands when the Convention meets in Cincinnati on August 15 to 28. Here is a group photo of the various chairmen of committees.

Front Row, seated, left to right—Ben Woerman, Chairman Publicity Committee; Joseph Kornmann, Chairman Registration Committee; August Bruder, Secretary; John M. Callahan, General Chairman; Theo. C. Dorl, President; Herb. Christina, Chairman of Plant Visitation and Vice Chairman; Lee Augustine, Chairman Exhibits; Albert Grunder, Board of Governors and Advisory Committee.

Back Row, standling, left to right—Ellis Kline, Board of Governors and Advisory Committee; Professor Robert Reed, Chairman Shop Trouble Committee; Leo T. Folz, Chairman Badge Committee; Jacob Nessler, Chairman Finance Committee; J. L. Roser, Board of Governors and Advisory Committee; Wm. E. Richards, Chairman Hosts Committee; Ed McGill, Vice President and Chairman Printing Committee; Carl Heuther, Chairman Transportation Committee.

Not appearing on photograph are Jim Sullivan, Treasurer; Mrs. George Wagner, Chairman Ladies' Committee; Leo Morand, Board of Governors and Advisory Committee; Alex. Thomson, Jr., Chairman Entertainment Committee.

Power

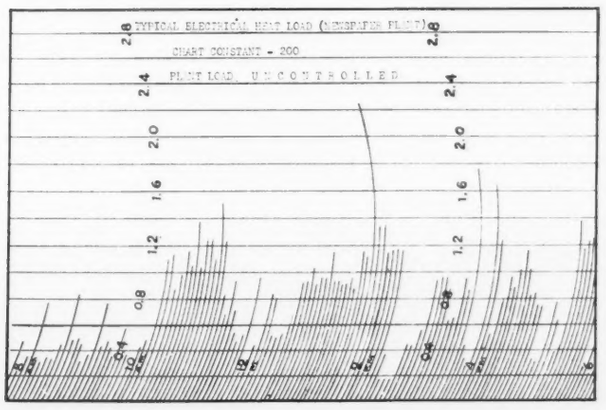
Demand Factor Automatically Limited

By A. E. Moore

As Told to Francis A. Westbrook, M. E.

It is hardly necessary to emphasize the fact that if the maximum demand for power can be kept within certain limits in any given shop or plant the cost of purchased power will be correspondingly lowered by the public utility. If some means are not taken to hold the possible maximum load down to whatever limit is decided upon, the power charges will be based on the total connected load at maximum demand requirements, on the assumption that every motor, every melting pot, every light, and every other item of electrical equipment may be in full operation simultaneously. This, of course, is a perfectly possible contingency and the power company must be prepared to meet the demand made upon it. It is, therefore, very desirable to hold the maximum demand down somewhere near the normal operating requirements.

In most plants there are generally certain pieces of electrically-operated equipment which may be used with reduced electrical input for certain more or less brief periods without



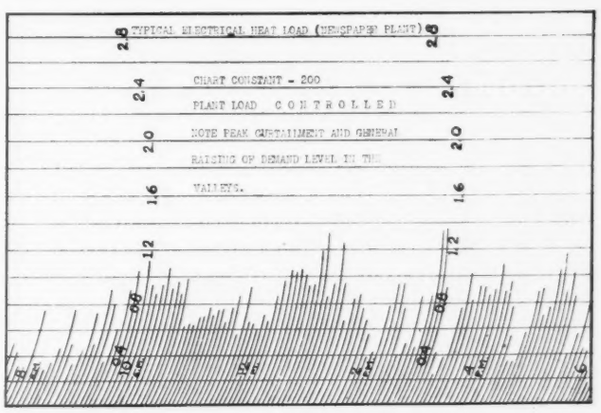
discommoding other operations seriously, or not at all. The peak loads are only momentary anyway, as when some heavy press is started up, so that it is not a difficult matter to keep the maximum demand within specified limits if proper equipment is provided for the purpose.

The Newark, N. J., *Star-Eagle* has recently installed a power demand controller which is shown in the illustration, and is an excellent example of how the maximum demand may be held down. This is a standard unit which operates directly from the disc of the plant watt-hour meter by means of an electric eye, which is the smallest division of power input into the plant which is measured. It operates automatically to cut in and out the various metal-melting pots used in the casting of type plates.

The reason why the metal-melting pots have been selected in this particular case for cutting down the load when necessary to keep it within the required limits is simple enough and by removing them from the line a very considerable reduction of the load results. In the second place, in operating a heat unit of this kind there is the favorable condition that a great deal of heat is retained between the walls of the furnace and the metal being melted. This serves to keep the metal melted during the short periods when the electrical current is shut off. The heat loss taking place during the period of interruption must, of course, be made up but it is more economical to do this than to pay for a high demand factor. In this plant the peak loads are occasioned by the simultaneous operation of the metal pots and the presses, so that by cutting off the pots for a short period (which does no harm) the power demand factor is held down.

In this instance the *Star-Eagle* expects to reduce its power bill by 15% without any noticeable effect on its operations. This means that the automatic controller will return its cost within a short period of time.

The two charts show the load before and after the installation of the demand controller. The first of the charts, which is most interesting, is that between the two vertical white lines (between the folds) as this represents that portion of the day which is most active in the *Star-Eagle* plant. It will be noted that with the controller in action the high peaks are eliminated and that the valleys are considerably smoothed out. In other words, the load is greatly steadied, which, of course, is the thing sought.



Illinois Executives Meet

The Illinois Daily Newspaper Composing Room Executives' Association will meet in Danville, Ill., on June 15-16. The conference sessions will be held at the Grier-Lincoln Hotel.

The Sunday morning (June 15) program is being arranged by John Cope, composing room superintendent of the Danville *Commercial-News*. The afternoon session will be conducted by Earl Anderson, president of the association, at which time a round table discussion will be conducted.

Harry Scott, composing room superintendent of the Decatur Newspapers, will give a talk on the Teletypesetter, using a blackboard to illustrate his lecture.

Introduces "Tower"

Believing that the vogue for condensed types is just beginning, the American Type Founders announce the completion of a new, condensed flat-serifed type.

While this type is really a condensed version of Stymie, the name Tower was chosen because in addition to being a

TOWER

A Stymie Companion

companion type for the famous Stymie Family, Tower has a distinctive and fashionable character of its own. It will be used for an entire advertisement or for headings in catalogs and other printed matter. Tower is made in one weight and in nine sizes from 12 to 72 point.

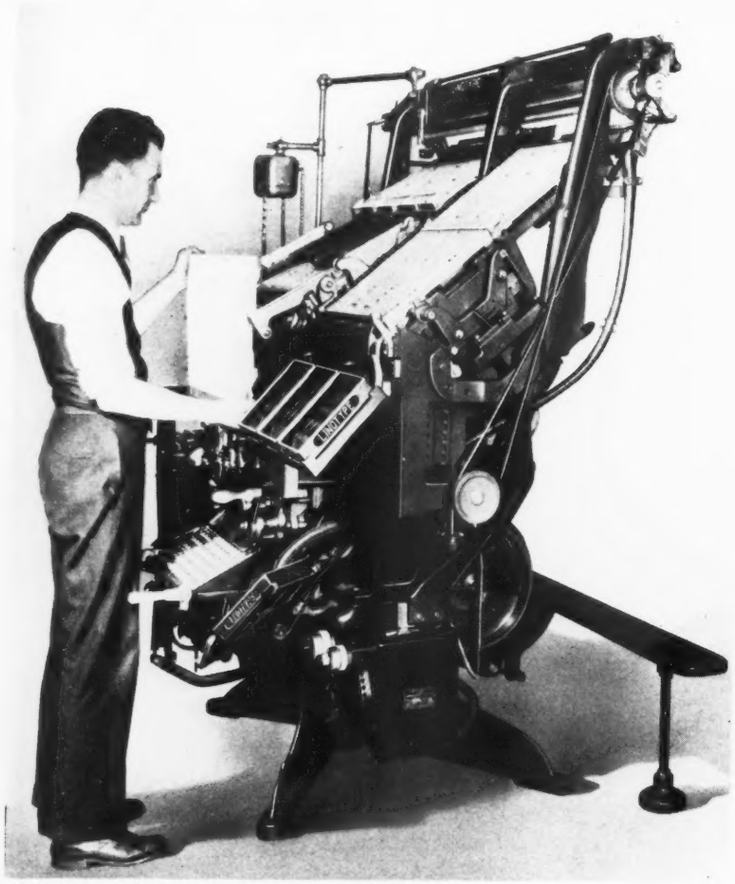


Fig. 1.—View of new Model 28 Linotype which carries three extra wide main split magazines, each of which will accommodate a full-width 36-point matrix font with standard 36-point figures 18 points wide. Each magazine channel has a capacity of 12 matrices.

The magazine shifting crank shown in this picture is used for changing any of the three main or auxiliary magazines from one operative position to another. A small shift lever located near the elevating handle is pushed in or pulled out to engage or disengage the auxiliary elevating mechanism.

This view also shows the magazine frame extension rails which are hinged to the stationary front guide holder right and left-hand brackets. Normally, these rails are swung backward to a reclined position with bail or tie rod resting across and on top of the upper main magazines. When it is desired to lift off one of the three main magazines, these extension rails are swung down over the keyboard and the elevating crank brings the magazine to position to make the change. The magazine which is to be changed is then slid downwardly from its frame and comes to rest in a vertical position on the extension rails as is shown in this picture.

Display

Linotypes Have New Features

By STAFF WRITER

THE two new Models 27 and 28 Linotypes have been designed primarily for display composition, 30, 36 and 42-em measure. In order to meet the wide and increasing varied requirements in this particular field effectively and economically, one of the first considerations in the development was to provide a magazine with sufficient capacity to carry a complete font of 36-point types, with all characters running in the keyboard, thereby reducing pi characters to a minimum. Among the other important requirements in a machine of this type is that a magazine must be light and easy to handle; the shift from one operating position to the other should be made rapidly and with a minimum of effort; the assemblage of extremely wide and very thin matrices uniformly smooth, fast, and free of transpositions; the distribuion speeded up to eliminate waiting time between magazine shifts; provision for casting occasional lines in extremely large faces from hand-set matrices, and other details which would make the entire machine function over a wide range of matrix sizes.

Each of these new machines is regularly equipped with three wide 72-channel magazines to which the matrices are distributed through one channel entrance, and a single distributor. The Model 28, in addition to the three wide main magazines, is equipped with three wide auxiliary magazines.

Each of the main magazines is 15 in. long and each has a capacity of twelve matrices per channel. They are 5¾ in. wider than the ordinary 72-channel magazine, permitting them to carry display faces up to and including a full 36-point, and standard 36-point figures 18 points wide. The main magazines are extremely light for their size and weigh 22 pounds when empty, or approximately 50 pounds when filled with a font of 36-point standard matrices. The standard 90-channel brass magazine, including a font of matrices, weighs approximately 78 pounds, and from this it will be seen that the new display magazine with a complete font of matrices weighs less than an empty brass magazine.

A rotatable crank handle located at the right-hand side of the keyboard operates elevating cam shafts through a train of gears so proportioned and timed that only three turns of the handle changes the operating position of either main or auxiliary magazines. The magazines, main or auxiliary, are brought to the delivery point by two rotatable "dwell" periods for each location. The elevating mechanism is

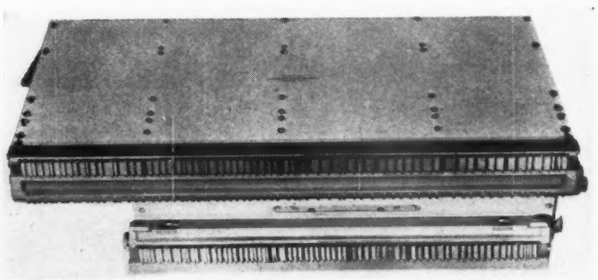


Fig. 2.—Comparative view showing difference in width between new Linotype Models 27-28 extra wide 72-channel main magazine and standard Linotype 72-channel magazine. The new extra wide magazine will accommodate full-width 36-point display matrices.

completely equipped with ball and thrust bearings, which add greatly to the speed and ease in shifting from one magazine position to the other.

The main magazine frame supporting frame is fitted with four-way adjustable bearings which produce a smooth evenly balanced motion in the supporting frame when it is raised for the removal of magazines, and an adjustable counted-balanced spring encased in a housing, mounted on the rear of the distributor bracket, is connected to the main magazine frame supporting frame by a racking lever to compensate for any variation of magazine load which may be placed on the machine. Suitable safeguards are provided so that magazines cannot be changed while matrices are on the distributor bar or if a worn matrix should protrude beyond the delivery point of the magazine.

The change of operative position of the auxiliary magazines is effected by the same mechanism which operates the main magazine frame. A small shift lever located near he elevating handle is pushed in or pulled out to engage or disengage the auxiliary elevating mechanism.

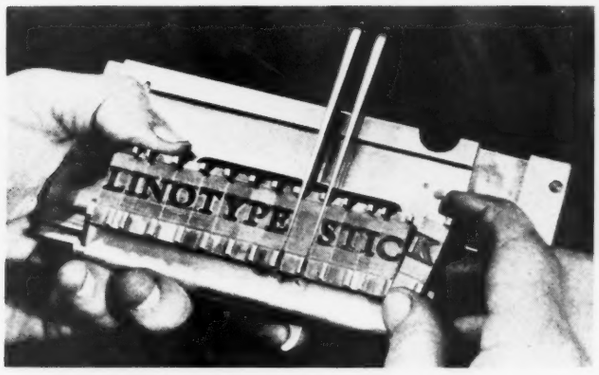


Fig. 3.—View of combination composing stick for assembling display matrices up to normal 60-point face on new Linotype Models 27 and 28. Normally, the stick forms the delivery channel front rail. After the stick (which contains a line of hand-set matrices) is returned to its place in the delivery channel, as shown in Fig. 4, the matrix line is transferred to the first elevator by means of a transfer finger.

The magazine escapement bar is attached to the magazine, and is automatically locked or unlocked by the cam action of a sliding bar as magazines are removed or placed on the frame.

The magazine escapement bar is attached to the magazine, and is automatically locked or unlocked by the cam action of a sliding bar as magazines are removed or placed on the frame.

The three main magazines are carried in a cradle, and the entire unit moves upward or downward on roller bearings attached to the magazine frame supporting frame. Automatic safety latches are attached to the main auxiliary magazine elevating cam roller shaft to safeguard the movement of the magazine frame against "runaway speed" while shifting positions of magazines.

Magazine frame extension rails are hinged to the stationary front guide holder brackets (right and left hand) and normally swing backward to a reclined position. These extension rails are joined by a rigid steel tie rod so that the rails may be swung outward as a unit for the removal or replacement of the main magazines.

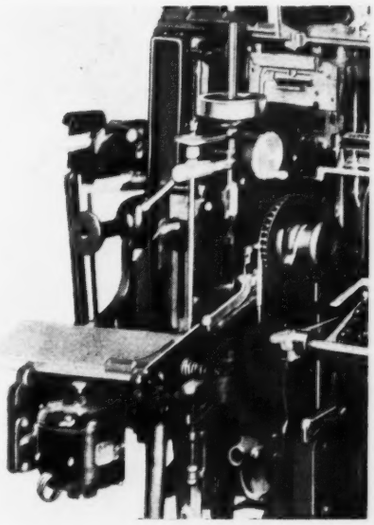


Fig. 4.—View of casting mechanism of new Linotype Models 27 and 28. The display stick in Fig. 3 is shown here attached to and functioning as the front rail of the delivery channel. Shown also are the new Linotype knife block and Mohr Lino-Saw with separate driving motor.

The distributor bar is made in three sections (one short and one long section for main magazines and one section for the auxiliary side) and set in position on the distributor beam so as to form one continuous bar.

An improved slug lever is actuated by the upward travel of the first elevator slide, which produces a smooth, steady movement in stacking the slugs on the galley. An adjusting latch can be set to regulate the length of the stroke of the slug lever to suit large or small slugs.

While the magazines carry the largest display faces that have ever been run in a 72-channel magazine, the machine is equipped with a removable delivery channel front rail which is a combination composing stick for hand assembling display matrices up to normal 60-point. The matrices are transferred to the first elevator by a transfer finger. The stick can be removed or replaced instantly.

The Double Quadding and Centering Attachment, the Mohr Lino Saw and any type of metal feeder can be applied in the usual manner.

Announces New Office

The D. M. Bare Paper Company of Roaring Spring, Pa., manufacturers of various kinds of book, mimeograph, bond, envelope and white papers, announce the opening of a New York Sales Office on May 1. This new office, located at 415 Lexington Avenue, is in charge of L. Gartland, General Sales Manager of The D. M. Bare Paper Company. He is well known in the paper industry.

Officers of the company are I. E. Garver, President; Russell B. Garver, Vice-President; L. F. Garber, Treasurer and General Manager, and Clarence Hair, Secretary.

Cincinnati

A New Spirit on the Old Map

Printing House Craftsmen will find much of interest in Cincinnati besides convention affairs on August 25, 26, 27 and 28, at the Netherland-Plaza Hotel.

Here are some notes about the city which will be of interest to convention visitors:

Commercially, Cincinnati's importance is indicated by 8,214 wholesale and retail stores—annual business, $1,270,000,000.

Industrially, Cincinnati is a leader, represented in 228 of 319 Census Classifications. Value of products, $543,305,903.

Nationally, Cincinnati is known for its printing inks, playing cards, soaps, clothing, paper, machine tools, laundry machinery, and radios, while coal offices in Cincinnati distribute 41,000,000 tons annually.

Collectively, the City's commercial and industrial activities are well balanced. This explains its historic soundness.

Nationally known as the best-governed city in the U. S. It has a lower municipal tax rate than any city of over 200,000.

Naturally, Cincinnati is a radio center—five stations—the Crosley 500,000 watt station—largest manufacturer of radio receiving sets in the world.

Advantageously situated—overnight from 75 million people, Cincinnati has 7 railroad systems entering its new terminal, the finest in America. It has a river rail terminal and a vast net work of motor lines.

Topographically, Cincinnati is ideal—industrial properties in valleys—home sites on the beautiful hills.

Impressively, the financial stability of Cincinnati is shown by not one bank or building and loan failure due to economic causes.

Sales

Of New Equipment Only Governed by Trade-In Plan

By JAMES E. BENNET*

OUR Plan of Value Determination covering Trade-In Allowances for used and second-hand machinery and equipment became effective on May 18, 1935. It must be emphasized that our Plan only operates in connection with the sales of new machinery and equipment. If a dealer in making a sale of used, re-built or re-conditioned machinery should take in trade other used machinery our Plan would not apply and he can make such allowances as he deems best without any reference to our Plan of Value Determination. His sale, however, does come under the Code and he must be careful in making his allowances to be sure that when he comes to make a re-sale that he will not make a loss, but, neither the Code nor the Plan of Value Determination dictates to the dealer the limits of his allowances for

*Secretary, National Printing Equipment Association, and secretary of the Code Authority for the Printing Equipment Industry and Trade, New York, N. Y.

Complete Text

Of Machinery Value Determination Method

The method of value determination and rules and regulations covering trade-in allowances for used and second-hand machinery, provided for in Article VII, section 3, of the Printing Equipment Industry and Trade Code, received the final approval of the NRA on April 19th, 1935. It becomes effective May 18, 1935.

DEFINITIONS

The term "CODE" as used herein means Code of Fair Competition for the Printing Equipment Industry and Trade approved February 2, 1934.

The term "INDUSTRY AND TRADE" means Printing Equipment Industry and Trade as defined in the Code of Fair Competition for said Industry and Trade.

The term "N.I.R.B." means the National Industrial Recovery Board under Title I of the National Industrial Recovery Act, approved June 16, 1933, and Executive Order No. 6859.

The term "USED MACHINERY" as used herein means used or second-hand machinery and/or equipment which are products of the Industry as defined in the Code.

The term "NEW MACHINERY" as used herein means new machinery and/or equipment which are products of the Industry as defined in the Code.

Pursuant to Section 3 (a), Article VII, of the Code of Fair Competition for the Printing Equipment Industry and Trade, the following Method of Value-Determination and Rules and Regulations to regulate the making of maximum trade-in allowances for used machinery accepted in trade as full or part payment for NEW machinery are hereby established, and when approved by the N.I.R.B., shall be binding upon every Member of the Printing Equipment Industry and Trade.

ARTICLE I.—METHOD OF VALUE DETERMINATION

1. Within sixty (60) days of the approval of said Method of Value Determination and Rules and Regulations each Member of the Industry and Trade shall determine, establish, and file with the Code Authority his or its maximum trade-in allowances he or it considers appropriate for Used Machinery of his or its own manufacture. The subsequent filing periods as described in Section 4 shall date from the termination of the sixty (60) day period.

2. At the time of filing proposed allowances for his or its machinery, any Member of the Industry or Trade may, if he or it wishes, file with the Code Authority a statement of the maximum trade-in allowances he or it intends to make upon any or all used maeninery manufactured by other members of the Industry and Trade.

3. No member of the Industry and Trade may make a trade-in allowance in excess of the maximum allowance he or it has filed with the Code Authority. Upon machinery for which he or it has filed no maximum allowance, no Member of the Industry and Trade may make a trade-in allowance in excess of the maximum filed by the manufacturer of the machinery.

4. To meet possible changes in the trade-in allowances thought appropriate, the right is nereby reseaved to each Member of the Industry and Trade to refile the schedules referred to in the paragraphs (1) and (2) above at regular intervals of not less than tnree months.

5. In the event that any Member of the Industry and Trade does not file his or its allowances as provided in Sections (1) and (2) of this Article I, then he shall not be permitted to file such allowances except at the regular intervals specified in the foregoing Section 4 of this Article.

6. If at any time upon complaint, or on its own initiative, the N.I.R.B. shall determine that this Method of Value Determination and Rules and Regulations are unfair, or unjust, or contrary to the public interest, it may require that such Method of Value Determination and Rules and Regulations be suspended for a period of not to exceed thirty (30) days to afford an opportunity for investigation of and public hearing on the merits of such action and further consideration of suspension or modification or elimination of any of the provisions of this Method of Value Determination and Rules and Regulations.

ARTICLE II.—RULES AND REGULATIONS

The Code Authority shall furnish, at actual cost, a copy of any list, schedule or certificate, original or revised, filed with it, to any Member of the Industry and Trade who makes written application therefor, and the Code Authority shall make all such lists, schedules and/or certificates so filed with it available at all times for inspection by any Member of the Industry and Trade, and by any purchaser or prospective purchaser.

The foregoing Plan was the result of many conferences and hearings, public and otherwise, and was approved in principle at the meeting of the National Printing Equipment Association, Inc., held in Chicago on October 17th, 1934.

The section of the Code under which this Plan was formulated, and the Administrative Order approving the Plan are as follows:

3. (a) Making any trade-in allowance for used or second-hand machinery or equipment accepted in trade as part payment for *new* machinery or equipment in excess of the value of such used or second-hand machinery or equipment, such value to be determined pursuant to *methods of value-determination or rules and regulations therefor, to be formulated by the Code Authority*, or if it so determines, by the Executive Committee of the Association as the agency of the Code Authority, and *to be approved by the Administrator*; provided that, pending such approval by the Administrator or in the event of subsequent withdrawals or suspensions of such approval, each Member of the Industry and Trade may accept in trade used or second-hand machinery or equipment at such values as such Member may determine rom time to time.

(b) No used or second-hand machinery or equipment so accepted in trade shall be disposed of (unless it is scrapped) for less than the amount allowed therefor and determined pursuant to the foregoing provisions of this Section plus all costs of handling and reconditioning, provided, that should there be such a decline in the general market prices for machinery or equipment, subsequent to six (6) months after the effective date, as would make the operation of this paragraph (b) of this Section inequitable or unjust, the Administrator may, upon application of the Code Authority or of any directly affected Member of the Industry and Trade, after such notice and hearing as the Administrator may prescribe, grant such suspension of, or make such exception to, the provisions of this paragraph (b) as in his judgment justice requires.

(c) Members of the Industry and Trade shall furnish to the Code Authority, at such times and in such form as it may require, such sworn reports as may be necessary to ascertain the compliance by such Members with the provisions of this Section 3.

(d) None of the provisions of this Section 3 shall apply to roll-fed presses which print from curved stereotype plates and which are generally used for printing the black and white sections of daily newspapers.

ORDER No 257-26

CODE OF FAIR COMPETITION FOR THE PRINTING EQUIPMENT INDUSTRY AND TRADE

Approval of Method of Value Determination for Used Machinery

An application having been duly made by the Code Authority of the Printing Equipment Industry and Trade for approval of a Method of Value Determination for Used Machinery formulated and submitted by said Code Authority pursuant to the provisions of Article VII, Section 3, (a), of the Code of Fair Competition for the said Industry and Trade, and the Deputy Administrator having rendered a report recommending approval of said Method of Value Determination for Used Machinery, the original being on file with the National Recovery Administration:

NOW, THEREFORE, pursuant to authority vested in the National Industrial Recovery Board by Executive Order No. 6859, dated September 27, 1934, by said article and section of said Code, and otherwise, there are hereby made the following findings, approvals and orders:

1. The said report and recommendation of the Deputy Administrator is hereby adopted and incorporated herein by reference.
2. It is hereby ordered that said Method of Value Determination for Used Machinery be and it hereby is approved and that as so approved it shall be made available to all members of the Industry and Trade, and thereafter each member of the Industry and Trade shall utilize such Method, as provided in such article and section of the said Code.
3. Said Method of Value Determination for Used Machinery shall become effective twenty (20) days from the date of this Order, unless good cause to the contrary be shown prior to said effective date and a subsequent order to that effect is issued.

NATIONAL INDUSTRIAL RECOVERY BOARD
By W. A. Harriman,
Administrative Officer.

Approval Recommended:
Barton W. Murray
Division Administrator
W. W. Rose
Deputy Administrator
Washington, D. C., April 19, 1935.

used machinery in a case like that. I mention this because there has been a great deal of talk and a great deal of propaganda against our plan claiming that it is a scheme to limit the business of the dealers in used machinery and to aid the manufacturers in a scheme to put second-hand dealers out of business. It is very plain, however, that there is no basis for this propaganda because the plan only operates in connection with the sales of new machinery and equipment.

Each dealer may file with the Code Authority a statement of the maximum trade-in allowances he or it intends to make for any or all machinery or equipment which he may take as part payment on a sale of new machinery or if he does not establish or file such a schedule then he is presumed to have adopted the schedule of maximum allowances filed by the respective manufacturers. That is practically the whole plan.

Everybody in the Industry has a right to file his own schedule of allowances and nothing is fixed or imposed upon him by the Plan. If, however, he does not choose to file any schedule then, of course, he must abide by those filed by the manufacturers of the machines which he may take in trade when he makes a sale of new machinery. Those dealers who handle only second-hand machines will not be affected in any way by the Plan but will continue to do business under the Code as they did before the Plan was approved.

Unfortunately there has been considerable talk against the Plan based upon a failure to understand it. The whole purpose is to stabilize the market in used machinery and also to eliminate some of the oldest and most obsolete items from the market.

The effect of the operation of the plan will be to make the Industry stronger and healthier and will be a benefit to the dealers.

New Intertype Faces

Baskerville Bold is now available in the 6, 8, 10, 12 and 14-point sizes, according to Intertype Corporation. The 14 point is shown below.

THIS paragraph is set in
14 Point Baskerville Bold
1234567890 1234567890

Other recent developments include larger sizes of Beton Extra Bold which is now ready in the 18 and 24-point sizes. Intertype Beton Extra Bold is a reproduction of the same face as introduced in this country by the Bauer Type Foundry. The 24-point size is shown below.

24 Pt. Beton Extra Bold

Among the faces recently cut for use in connection with the new composing stick attachment are 48 and 60-point Vogue in both light and bold face.

NPEA Special Meeting

A special meeting of the National Printing Equipment Association, Inc., will be held at Hotel Vanderbilt, 33rd Street and Park Avenue, New York, Borough of Manhattan, on June 5, at eleven o'clock in the forenoon. The purpose of the meeting is to consider recommending Amendments to several sections of the Code and for such other business as may properly come before the meeting.

Chases

Are They Important to Stereotyper?

By DRY MAT BILL

AT FIRST thought it doesn't seem that the prosaic newspaper chase would be of enough importance to provoke discussion in connection with other newspaper production problems. However, in analyzing all the elements which enter into the mechanical processes the average mechanical executive gives some thought to equipment which has not been considered as having a bearing on the quality of his newspaper. From the standpoint of the stereotyper chases are of sufficient importance that they should be considered rather importantly, if for no other reason than the chase is a means for control in the mat-molding process and further, the stereotyper is entitled to all the means which will help him control the final dimension of his plates.

At best stereotyping is a rather uncontrollable process. The methods and materials employed do not lend themselves to absolute control as is known in other manufacturing processes. Considering present methods, 90% of good stereotyping is dependent upon the skill and judgment of the stereotyper.

While it is stated that stereotyping methods are not susceptible to precision methods, yet at the same time the conscientious stereotyper is striving to better his product by adopting new methods and equipment.

Newspaper chases, it is generally agreed, should be constructed in such manner that the inside dimensions will be perfectly at right angles. The locking means must be such that when a page is tightened the chase frame will not bow or bend at sides or ends. The frame should not twist while under lockup pressure, but should lie perfectly flat on the molding table.

In recent months a controversy has existed as to the merits of type high (0.918 in.) newspaper page chases and low chases (0.906 in.). From information which I am able to collect, most mechanical executive prefer type high chases. The controverted subject seems to center about one major point, *i.e.*, the excellence of molding depth—whether or not the bowls of round-bodied type characters or the interstices between half-tone screen lines are best reproduced in the stereotype matrix which is molded with or without one or the other height of chase.

Theoretically, there is one argument in favor of low chases. This is the application of maximum molding pressure directly on the type page *without the use of bearers* in an effort to obtain maximum molded depth in the mat.

Forms containing type areas are capable of withstanding only so much pressure without crushing. It

Continued on page 99

Duffy Memorial

Held in New York "News" Plant

By STAFF WRITER

MANY newspaper mechanical executives throughout the country, especially those associated with A. N. P. A. member papers, who knew Edward J. Duffy personally, will be interested in the ceremonies connected with the unveiling of a bronze plaque to his memory in the plant of the New York Daily *News* on April 24 last.

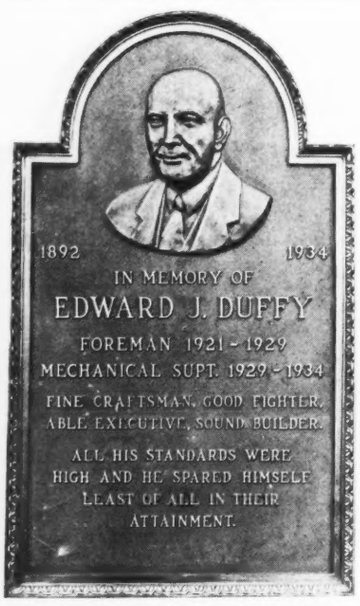
More than one thousand persons attended the unveiling ceremonies in honor of the former mechanical superintendent who passed away July 23 last year. Edward W. Edwards, representative of the International Printing Pressmen and Assistants' Union of North America, and Industrial Commissioner of Labor for the State of New York, paid tribute to Mr. Duffy.

Mr. Edwards said, in part:

"We are gathered to pay our respects humbly to a departed fond friend; to commemorate the virtues of a man whose simple and natural way of life invariably kindled and cemented warm and lasting friendship; a man who was imbued with abiding faith and trust in his fellow men. With a rare conception of human psychology and values, he depended consistently upon industry and honor as his measure of the practical virtues which merited recognition and reward.

"Our departed genial friend was intensely humane. He had a penchant for interesting himself in the happiness, the success and progress, the problems and misfortunes of his subordinates. He was a strong adherent to principle. He persistently stressed and exemplified the right kind of conduct between man and man. He consistently encouraged clean, decent habits and customs of living. A favorite expression of his was that every man deserved a chance to make good regardless of his past failures or indiscretions which were the mistakes of judgment. On the other hand he was a hard task master to the slacker and imposter to the disloyal or insubordinate. He had intolerable impatience of dishonesty and dishonorableness. His influence in moulding the right kind of character was extensive and effective.

"His private life and devotion to his family were exemplary. His ardent love for his mother and his profound respect for womankind are an inspiration. We know that his wonderful mother and his good sisters and brothers have, by their faith in God, found resignation, solace and comfort. Surely the world was made better for his living. In our memory of him may we all strive to emulate his way of life, his devotion to duty and his good deeds."



1892—1934
In memory of
Edward J. Duffy
Foreman 1921-1929
Mechanical Superintendent
1929-1934
Fine Craftsman
Good Fighter
Able Executive
Sound Builder
All his standards were high and he spared himself least of all in their attainment.

The following relatives of Edward J. Duffy were present at the unveiling: His mother, Mrs. Elizabeth M. Duffy; a brother, Frank; two sisters, Mrs. May Foster and Mrs. Rose Dunn, and a niece, Mrs. Katherine O'Brien.

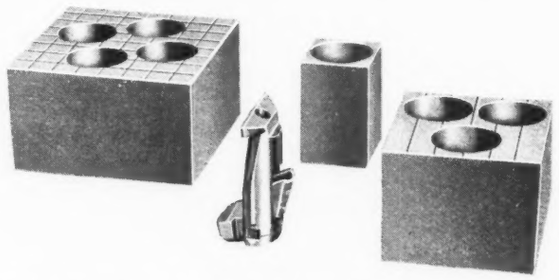
Among those who attended from the *News* organization were: R. C. Holliss, general manager; Max Annenberg, circulation director; Ivan Annenberg, circulation manager; R. T. Wilken, advertising manager; James F. Griffin, Superintendent of Pressroom; A. C. Smith, Mechanical Superintendent, and F. M. Flynn, Assistant Business Manager.

In the gathering assembled to pay tribute to Mr. Duffy were noted: Joseph C. Orr, Secretary-Treasurer of the International Printing Pressmen and Assistants Union of North America; Andrew R. Armstrong, President of the New York Newspaper Printing Pressmen's Union No. 2; John J. Maloney, Assistant President; James I. Monahan, Secretary-Treasurer, and Charles Rayder, Timothy Ryan, Edward J. Gordon, Frank J. Schlosser, William Barry, John L. Woods, William O'Brien, Jacob Kaiser, Walter Hogan, Frank Lambert, George Cassidy, Timothy Dunn, and many others, including officers and members of the different labor organizations engaged in the newspaper industry's production departments together with numerous state, county and city officials.

Sterling Toggle Shells

In the last couple of years printers have made progress in eliminating wood as a mount for printing plates. Being fibrous and porous, wood cannot stand up uniformly under normal impression, and being subject to variation in size, due to climatic changes, it will not maintain accurate register. Since adoption of the Electrotypers' Code all electrotypes are being furnished eleven points thick. This is the standard height for use with metal base. In addition, wood-mounted electrotypes carry a higher price.

The use of metal base is no longer being limited to process work and long runs. Wherever electrotypes are used metal



View of Sterling Toggle Shells which can be used with small sectional base, monotype and various types of quad base.

base is being used. This more extensive use of metal base will be benefited by the introduction of Sterling Toggle Shells by The Printing Machinery Company. These Toggle Shells are made 3x3 picas, 6x6 picas and 8x8 picas and can be used with small sectional base, monotype base and the various types of quad base. The Toggle Shells permit the use of the Sterling Toggle Hook for holding and registering plates. This is the same hook that is used by many printers with the Semi-Steel Toggle Base. The use of the Toggle Hook and Shell with any one of the methods for mounting plates mentioned above makes available to the printer all of the advantages of the Toggle Register Hook. The 3 by 3 pica shell is made from steel and the 6 by 6 and 8 by 8 pica shells are made from cast iron. The manufacturer advises the preparation of literature describing the Toggle Shells, which will be sent gladly by addressing The Printing Machinery Company, in care of *Printing* EQUIPMENT *Engineer.*

Going To Press

On Time a Problem in Many Plants

By STAFF WRITER

GETTING editions to press on time is a problem sometimes in the newspaper plant. Quite often the delay is not due to mismanagement or neglect in the mechanical departments but may be due to causes over which the mechanical departments have no control. In a situation such as this it is well that the mechanical department executive assume the initiative in attempting to find the causes for lagging production. Unless some method is adopted which will afford a means for analyzing the causes for delay, quite likely it will be difficult to fix responsibility.

In case copy flow is responsible, the chart reproduced here will be of assistance in analyzing the trouble which may be due to lagging delivery. Dan Jagerski, mechanical superintendent of the Gannet Albany newspapers, the *Evening News* and the *Knickerbocker Press*, has found this Daily Copy Desk Report of great value in getting editions to press on time.

The original blank form measures approximately 15½ in. deep by 16 in. wide. From 7:30 to 9 o'clock the spaces are divided into 15-min. intervals. From 9 o'clock till first edition time at 10:30 the spaces are divided into 10-min. intervals. "Pressure points" throughout the day are indicated by the frequency with which copy is received. A column is provided for each major classification of copy and a blank space under each head can be used to indicate time of copy receipt in the composing room.

Since no two newspaper mechanical departments operate under similar conditions, mechanical executives who might adopt Mr. Jagerski's plan will, no doubt, alter the blank to suit the plant in which the check is to be made.

DAILY COPY DESK REPORT
Estimated in Inches

ALBANY EVENING NEWS **Date**.....

No. Pages 1st Edition..... **Cols. of Ads**..... **Cols. of News Space**.....

	Pick Up from Knickerbocker Press	Sports	Society	Telegraph	Local	Cut Captions	Page 1 Copy	Financial
7:30								
7:45								
8:00								
8:15								
8:30								
8:45								
9:00								
9:10								
9:20								
9:30								
9:40								
9:50								
10:00 Copy Dead Line								
10:10								
10:20								
10:30 1st Ed. Dead Line								
11:00								
11:30								
12:00								
12:15								
12:30								
12:45								
1:00 Copy Dead Line								
1:15								
1:30 City Ed. Dead Line								
1:45								
2:00								
3:00								
3:30 Pink Edition								
4:00								
4:30								
4:45 Green Edition								

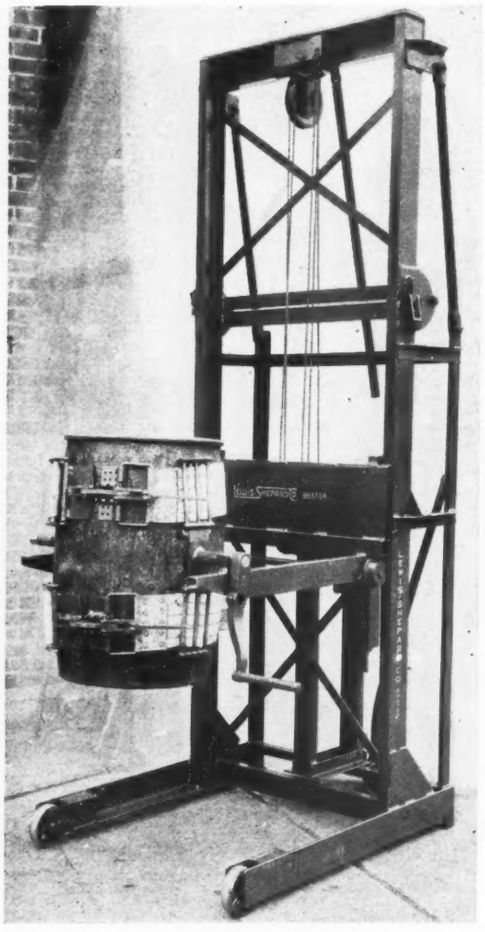
Stacker

Used To Dump Ink Barrels

By FRANCIS A. WESTBROOK*

The New York *Daily News* has adapted a standard stacker for picking up barrels of ink of different colors for dumping. A device has been designed which clamps around the barrels and provides a trunnion by which they may be supported on the lift platform of the stacker and by means of which they may be dumped by the ratchet and handle shown in the photograph. Actually the only way in which the standard stacker has been changed was to omit the usual platform and substitute two arms to support the trunnions. The belt-type harness was used because of the large variation in sizes of ink drums.

*Mechanical Engineer, Center Conway, New Hampshire.



Meeting

Of Graphic Arts Research Bureau

By STAFF WRITER

THE first meeting of the recently organized Graphic Arts Research Bureau will be held in Cincinnati, on June 20-21. The first day's sessions will occur at the Hotel Gibson where the American Society of Mechanical Engineers will be holding its semi-annual meeting. The second day's sessions will be at the University of Cincinnati, where the Lithographic Technical Foundation maintains its research laboratory under Prof. Robert F. Reed.

Those invited to preside over the four sessions are: Dr. Arthur C. Jewett, former Director of the College of Industries, Carnegie Institute of Technology, Pittsburgh, Pa., and chairman of the Research Bureau; Edward Epstean, Chairman of the Graphic Arts Division, The American Society of Mechanical Engineers; and George H. Carter, Assistant to the President, The Lanston Monotype Machine Company, Philadelphia, Pa., and former Public Printer of the United States.

There will also be inspection trips to local printing plants.

Assisting as joint hosts and cooperating are the Graphic Arts Division (formerly the Printing Industries Division) of The American Society of Mechanical Engineers, the Lithographic Technical Foundation, the American Institute of Graphic Arts, the Cincinnati Club of Printing House Craftsmen, and the Cincinnati Section of the A. S. M. E.

PROGRAM

THURSDAY, JUNE 20, 1935

8:00 A. M. Registration Opens—Roof Garden—Hotel Gibson

NOTE: There will be a registration fee of $2 for those not already members of the Graphic Arts Research Bureau or the A. S. M. E., entitling the registrant to individual membership in the Research Bureau for the year 1935 (expiring March 1, 1936).

Local attendants who are *not* members of the Graphic Arts Research Bureau, but who *are* members of any of the cooperating or host organizations, need pay the registration fee only if they wish to become members of the Research Bureau. The membership fee will entitle the registrant to all the reports and publications, including also a copy of the Proceedings of the Fifth Technical Conference in Philadelphia, the full report of the Research Bureau Conference, etc.

The A. S. M. E. Semi-Annual Meeting is being held June 19-21 at the Hotel Gibson, and members of GARB are invited to attend any of the other A. S. M. E. technical sessions, inspection trips, etc.

9:30 A. M. Lectures on Color—Hotel Gibson
Arthur C. Jewett, Pittsburgh, Pa., Chairman of GARB, Presiding Officer
Introduction by Charles Clarkson, Vice-President, International Printing Ink Corporation, New York, N. Y., and Chairman of the Sub-Committee on Research Problems, Graphic Arts Research Bureau

9:35 A. M. *Lecture on Color Chemistry,* by Dr. A. E. Gessler, Director of the Research Laboratory of the International Printing Ink Corporation, New York, N. Y.

The lecture covers, with dramatic exhibits, the latest chemical developments in colors. Facts about the chemistry of color should be generally understood. Certain colors are not now available. The steps being taken by color chemists that will affect new vehicles; progress in producing non-fading, alkali-proof, permanent colors for packages, general printing, and paints.

10:45 A. M. Discussion

11:00 A. M. *Lecture on Color as Light,* by Arthur C. Hardy, Professor of Physics, Massachusetts Institute of Technology, Boston, Mass.

It is not generally known that color can be measured and specified more accurately than any physical quantity. The human eye is fallible, but with the aid of an instrument using the photoelectric cell, the curve of a color can be automatically and graphically traced. Such a curve reveals characteristics of immense aid in selecting a proper color, in specifying color, in predicting its behavior in mixtures, or for example in the three-color process of printing.

12:00 Noon Discussion and Questions

12:15 P. M. Luncheon. Members and guests are invited to attend A. S. M. E. Luncheon at Netherlands Plaza Hotel, Pavillion Caprice; speaker, City Manager C. A. Dykstra

2:15 P. M. *Lectures on Color*—Hotel Gibson
Edward Epstean, Chairman of the Board, The Walker Engraving Company, New York, N. Y., Chairman of the A. S. M. E. Graphic Arts Division, and Vice-Chairman of the Graphic Arts Research Bureau, Presiding Officer

2:15 P. M. *Lecture on Color in Use,* by George L. Welp, formerly Art Director, The Blackman Company, New York, N. Y.

There are certain color principles that determine visibility, legibility, the "power" of color and its "effect." This lecture presents color from the point of view of the artist, the designer, and the user.

3:30 P. M. *Fundamental Research in Graphic Arts,* by Charles Clarkson

4:15 P. M. Business Meeting of the Graphic Arts Research Bureau

6:30 P. M. Delegates may attend the regular dinner of the A. S. M. E. or go on one of the sightseeing newspaper trips

FRIDAY, JUNE 21, 1935

8:45 A. M. Buses leave Hotel Gibson for visit to the United States Playing Card Company Plant and then to the University of Cincinnati

11:30 A. M. Lithographic Session—University of Cincinnati, 200 Baldwin Hall
E. W. Palmer. President, The Kingsport *Press,* Kingsport, Tenn., and National Graphic Arts Code Authority, Washington, D. C., Presiding Officer

Lithographic Research, by Prof. R. F. Reed, University of Cincinnati and Director of the Lithographic Technical Foundation

The Lithographic Technical Foundation began active work in 1925. The Research Laboratory contributions include plate-making and plate control, paper-making and improved register, increased knowledge of causes of deterioration of rubber blankets and methods of prolonging blanket life, and an increased knowledge of the plastometry of printing and lithographic inks. (See full list of publications and reports on bulletin board.)

Recent Development in Lithographic Printing, by Lewis Kantrowitz, Technical Director, Government Printing Office, Washington, D. C.

1:00 P. M. Luncheon at University of Cincinnati, University Y. M. C. A. (50 cents)

2:30 P. M. Technical Session at University, 200 Baldwin Hall
Hon. George H. Carter, former Public Printer, Assistant to the President, Lanston Monotype Machine Company; Chairman of Research and Survey Committee, A. S. M. E. Graphic Arts Division, Presiding Officer

Recent Photo-Mechanical Developments, by A. Mertle, G. Cramer Dry Plate Company, Cincinnati, Ohio

Resolving power of photographic plates and films; nature and use of strip film, highlight negatives, diffraction theory of halftone; use of fine halftone screens; projections in platemaking; modern collotype; relief plates from photographic film; color photography and color reproduction (Meinograph process); electrolytical dot etching; deep-etch plates in lithography; rotogravure and chromium plating of cylinders, wire photo; and perhaps additional subjects.

The following subjects will either be discussed or papers will be presented by title: Precision Plate-Making Process, High-Speed Newspaper Printing, Newspaper First-Impression Offset, Color-Measuring Devices, Paper and Its Relation to Printing.

5:30 P. M. Meeting of Graphic Arts Research Bureau Committees for business meeting and dinner

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A reduced convention railroad fare of one and one-third the regular one-way rate has been allowed, and a certificate to allow this reduction if requested, will be sent by the Graphic Arts Division, A. S. M. E., 29 West 39th Street, New York, N. Y.

Waste

In The Remelting Pot

Small routine items in connection with newspaper plant management, to which little attention is paid, can be the means of a large expenditure of money over a period of time. Such an item is reported by the mechanical superintendent of a newspaper group.

For the past year one of the group papers has purchased stereotype and composing room metals from one company. The plant of the company furnishing the metal is located near the city where the newspaper is published and the mechanical superintendent took advantage of this condition to visit the metal plant to watch the dross as it was being put through the reverberatory furnace. He found that in practically every shipment of composing room metal dross there were between forty and fifty dollars worth of spacebands and matrices, despite the fact that instructions had been given to janitors to scrutinize carefully all metal trimmings swept from the floor under each composing machine.

Upon separating the machine parts from one month's dross shipment it was found that the salvage consisted of 8 Ludlow matrices, 10 Ludlow spaces, 21 Linotype spacebands, 10 Linotype display matrices and 236 Linotype matrices in the smaller size faces.

From the results of this investigation it can be seen that it would be well worth while for all mechanical executives to make arrangements looking toward the salvaging of these parts from floor sweepings as well as providing a way to obtain cooperation from machine operators and the machinists to assist in the immediate recovery and corrective measures to minimize falling matrices and spacebands.

Hard Metal

Used To Cast Slugs On Intertypes

By STAFF WRITER

IN RECENT issues of *The Michigan Bell*, a publication devoted to the interests of Michigan Bell Telephone Company, R. A. Storm, directory engineer, describes the work of the Directory Department which is under the supervision of Directory Superintendent Henry C. Kulling. To illustrate the work of the Directory Department, publication of a new issue of the Detroit Telephone Directory was described. Many details peculiar to this class of work are discussed by Mr. Storm. At present 130 directories are being published for the various Michigan exchanges. The Detroit directory and local books for the exchanges included in the suburban section of that directory are publishsed every nine months. Directories for other Michigan exchanges are issued once a year.

All of the directories, with the exception of one state book, are printed by R. R. Donnelley & Sons Company. The regular Detroit directory is set, made up into pages and plated in that company's Detroit plant, but is printed and bound in the Chicago plant. The Detroit daily directory is manufactured completely in the Donnelley Detroit plant, and the state directories in its Crawfordsville, Ind., plant.

Readers of *Printing* EQUIPMENT *Engineer* will be interested in that section of Mr. Storm's article which describes some of the mechanical details incidental to the method developed and adopted to cast listing slugs from hard metal on Intertypes by means of which the excellent typographical appearance of the Detroit directories is maintained constantly.

Quoting from the article it is stated: "The clear, even printing of the listings in the Detroit alphabetical section is accomplished by the recent development of 'hard slugs' for printing the Detroit daily directory. . . . Since introduction of the daily directory, there have been numerous improvements, perhaps the most outstanding of which is the present use of single hard metal slugs (molded lines of type) for the printing of both the daily directories and the regular directories for subscribers, in place of the duplicate slugs originally cast (one for use in printing the daily books and the other for printing the regular subscribers' directories). The principal obstacle in the way of using single slugs for printing both books has been that the standard type metal for use on line-composing machines is not hard enough to withstand the wear and tear from the daily printing of the traffic information books and remain in good enough condition to be used for making good, clear printing plates for the regular director. However, from the very beginning of the daily directory plan, our directory people had in mind that a hard metal slug could be developed and, after considerable experimentation and study, the type metal people (Imperial Type Metal Company) in cooperation with our printer (R. R. Donnelley & Sons Company) perfected a suitable alloy, and the manufacturer of the composing machine (Intertype Corporation) designed special parts to permit the use of the new hard metal in its machines with the result that only the one had metal slug now is used for the printing of the daily directory and the regular directory. This is the first time hard metal has been used successfully in the slug-casting type of composing machine."

Stoker

Used To Heat 2½-Ton Stereo Pot

By JACK BURKE*

SEVERAL plants of the Gannett Group of newspapers are located in small towns, where the stereotype metal pots are heated with coal. Bert Lipe, a representative of the Blatchford Metal Company, suggested the possibility of using a "stoker" in connection with our coal-heated pots. Accordingly the publishser of our Ogdensburg (N.Y.) paper got in touch with the local Combustionaire dealer who made a very complete analysis of our operation in Ogdensburg.

The Combustionaire Stoker is made in Springfield, Ohio, and is one of the principal stokers made. The Ogdensburg dealer estimated a saving of $100.00 a year could be made with the installation of one of the stokers. In the last 14 months we used 53,000 pounds of coal at a total cost of $218.19, or an average per month of $15.63. The Combustionaire representative guaranteed a saving of $100.00 a year on the above figures.

One of these Stokers already in operation uses about 24c worth of coal in 24 hours. They use what is known as "stoker coal," which costs about $4.50 a ton. The maximum amount of coal used is 17 pounds per hour, and that for only a short period during the day.

These stokers have the advantage of an automatic control, being fitted with a two-control switch marked Day and Night. It is possible to maintain any desired heat. When through casting for the day, the switch is turned to the side marked *Night*. The metal then cools down to 300 deg. F. and is held very close to that temperature until the men start to work in the morning, when the switch is thrown back to the side marked *Day*.

These stokers cost about $400.00 and either soft or hard coal can be used. The rice coal is the usual size when the hard coal is used.

The pot has a 2½-ton capacity and the average amount of coal used per month was 1.89 tons. The Stoker we are buying for the Ogdensburg plant is to cost $350.00 and the dealer, in addition to saving us $100.00 a year, guarantees that we can maintain a temperature of 625 deg. F. at all times. The device will prevent the excessive heating which we now have with our hand-firing methods.

*Production Manager, Gannett Newspapers, Inc., Rochester, New York.

Cuts

Made In One-Man Plant

By O. W. McKennes*

THE miniature photo-engraving plant placed on the market a little over a year ago has been adopted by a number of newspaper publishers who immediately recognized its potentialities. This plant is designed for one-man operation who, though he may be without previous engraving experience, can learn to make halftone plates. The complete plant, comprised of equipment made by well-known manufacturers, is practicable because it utilizes Contrasto Strip Film which simplifies photoengraving by eliminating the wet negative.

Contrasto Strip Film has been manufactured and marketed by the Polygraphic Company of America for over ten years. The product first was applied to photo-offset printing and lithography. Large newspaper publishers, operating private photoengraving plants were the next group to use dry film negatives. Many of the fine halftone illustrations appearing in our biggest dailies are made from Strip Film negatives.

The success of tabloid newspapers which were the first to "say it with pictures" compelled the most conservative publishers to recognize the circulation value of photographs. Today the same news picture one sees blazoned on page one

Fig. 1.—This picture shows the camera, two arc lamps and the plate printing frame which are supplied as standard equipment with the One-Man Photoengraving Plant.

of the tabloid is found on page two or three of the "blue-and-silk-stocking" press. The competition of the motion picture newsreel, too, also induced conservative publishers to picture their papers.

Small publishers soon discovered that photoengraving purchased outside frequently was a source of delay in getting the paper to press on time. Thus the smaller and more ambitious publishers were willing to try the Polygraphic photoengraving plant, operated on a part-time basis by a company employe.

The results to date indicate that operation of the Polygraphic plant is successful. Some publishers, however, report amusing experiences. One was amazed to find the town's great southpaw pitcher pictured on the sport-page halftone as a right-hander.

*Polygraphic Company of America, Inc., New York, N. Y.

A large group of small publishers are now making halftones from day to day with the Polygraphic One-Man Plant. One publisher, at least, has gone a step farther and acquired a routing machine which equips him to make line engravings for use in his job printing department. This is F. F. Payne, publisher of the *News*, Nelson, British Columbia, who is willing to be quoted.

Mr. Payne says: "You will be interested to know that we are getting along nicely with the Polygraphic One-Man Photo-Engraving Unit. We were a little slow in getting under way as we employed a green man on this work. He has trained himself with some assistance from me. We have obtained our knowledge by what I learned during my visit to New York, by reading text books and by the process of trial and error.

"We are now able to turn out satisfactory plates. The public is showing a goodly interest in the local pictures we are able to run. We are being flooded with photographs from all parts of our territory. Incidentally, we adopted a

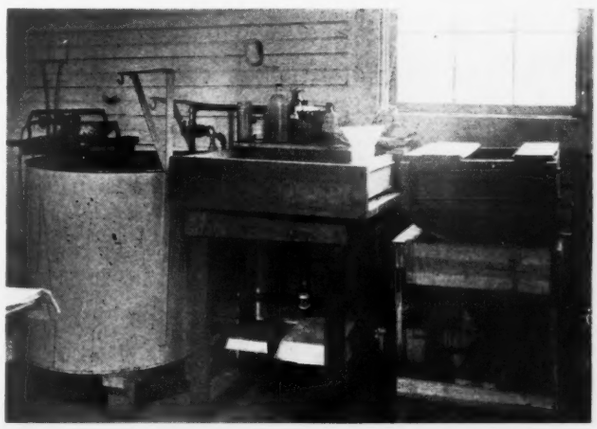

Fig. 2.—Picture reproduced from an actual installation of the Polygraphic One-Man Photoengraving Plant. At the left is the whirler; in the center is the sink in which zinc plates are sensitized, and at the right is the rocking tub in which plates are etched.

policy of refusing to pay for photographs and it is working out well. Our photoengraver is also our staff photographer.

"We have found the Polygraphic equipment valuable for producing plates for our own job department for which we make line cuts as well as halftones. Because we have this engraving equipment we have picked up job printing which otherwise would have gone out of town."

DESCRIPTION OF PROCESS

The Polygraphic One-Man Plant includes an 11 in. by 14 in. camera with stand and copy holder; a barrel anastigmat lens with iris diaphragm; a 65-line halftone screen 8 in. by 10 in. with attachment; and two arc lamps (220 volt a.c. or d.c.). The Strip Film holders is loaded in a dark room and after exposure developed there. The Contrasto Strip Film supplied takes the place of the wet plate negative.

During the developing process the Strip Film releases itself from its paper backing and then is ready to be stripped on glass. Contrasto strips on either side and without any adhesive solution. For halftones for letterpress printing the film is "flopped." As many negatives as can be accommodated on an 11 in. by 14 in. "flat" are stripped on a stripping table which has a transparent top and an enclosed, illuminated base. Then a sheet of polished zinc is sensitized and dried (with gas heat) in the whirler. The printing of the image on zinc is as simple as making a Velox print. One of the arc lamps supplies illumination. The image on the zinc is then coated with enamel and the first bite made in an etching tub of the rocking type. The plate is then protected

with "dragon's blood," applied in an enclosed powder box, after which the second bite is etched. When an extra deep plate is required a third bite is necessary. This completes the process and the finished plates are then cut apart and trimmed with a power circular saw.

The Polygraphic Company supplies all equipment, chemicals, complete instructions and time scale which records the exact exposure for various kinds of copy, developing, printing and etching. The entire plant can be operated in a space as small as 300 square feet and no daylight is necessary. The purchaser must build a small dark room and make electric and gas connections.

Status

Of Newspaper Bleed Pages

One of the best specimens of newspaper all-over bleed page color printing that has come to the attention of *Printing* EQUIPMENT *Engineer* is that of the first-section first page of the San Diego (Calif.) *Union* Special Exposition Edition, issue of Sunday, April 8. The bleed page shows that the mechanical staff of the *Union*, in addition to winning recognition for advertising color printing, knows how to secure pleasing bleed page effects.

The front page for the section was fully bled from all four sides. An all-over halftone was printed in a light blue. Red and black ink lettering with a Ben Day band was printed over the blue ink. The work was accomplished without the use of an extra printing couple.

While some advertisers have taken advantage of the possibilities of this type of space, it is not known to what extent bleed pages have been used since the first specimens began to appear late in the summer.

A number of newspaper mechanical executives in various parts of the country in addition to K. L. Gregg, pressroom superintendent of the San Diego (Calif.) *Union* have reported their accomplishments from time to time. Among these are: George Fuller and Walter Ogden of the Cleveland *Press;* E. W. Prophet, mechanical superintendent, and K. G. (Doc) Laycock, pressroom superintendent of the Wilkes-Barre (Pa.) *Times-Leader;* Oral M. Harper, mechanical superintendent of the Tulsa (Okla.) *World;* Frederick Forstall, mechanical superintendent of the New Orleans *Times-Picayune;* H. E. Tischer, superintendent of the Missouri Agricultural Publishing Company, St. Louis, Mo.; the Portsmouth (O.) *Times* and the Painesville (O.) *Telegraph.*

Kenneth L. Gregg, superintendent pressroom, San Diego (Calif.) Union-Tribune, *accepts special winged trophy from Miss Lorene K. Dowd, secretary to A. K. Whyte, publisher of the* Union-Tribune. *The trophy was awarded the San Diego* Union *for having printed the best color advertisements in Color Class A, soft-packing class, for the Sperry Flour Company's "Home Perfected" Flour, by the Westco Advertising Agency of San Francisco.*

Reading from left to right are: William T. Schneider, Stereotype Superintendent; Matt Spratt, Color Press Foreman; K. L. Gregg, Superintendent of Pressroom; Lorene K. Dowd, Secretary to Publisher A. K. Whyte, and Harry Lindsey in Charge of Color Stereotyping.

New Slot By Challenge

Another type of slot has been added to the many possibilities of the Challenge Slotting Attachment for use on the Challenge Paper Drilling Machine.

This new slot is straight on one side and angling on the other. It can be made without drilling a hole to guide the slotting knife. This type of slot is used where the sheet has been perforated and the customer wants the sheets to tear at the perforated line without the care usually required to start the tearing operation.

The only additional cost for including this operation to the many jobs produced with a Challenge Slotting Attachment is the purchase of a special knife.

Another feature of the Challenge Slotting Attachment is the fact that the Slotting Knife does not attach to the spindle of the Paper Drilling Machine. For this reason inadvertant starting of the motor causes no trouble and is not dangerous so far as the operator is concerned.

Further information may be obtained by addressing the Challenge Machinery Co. in care of *Printing* EQUIPMENT *Engineer.*

Flexible Drive Coupling

An improved type of drive coupling for fractional horse power motors, designed to eliminate transmission of noise and motor torque vibration from the motor to the driven shaft, has been developed and is now being introduced by the Guardian Utilities Company. It is made of flexible rubber, treated to resist action of oils, and offered in various lengths to eliminate the extra cost of shaft extensions.

The new device will operate under reasonable later or angular misalignment without binding, friction or noise. It is particularly suitable for

use with cushioned or spring motors, either base or flange mounted, and affords quick, convenient alignment of the motor and the driven shaft.

Custom made in lengths from 2½ in. up, and with any combination of bores, 5/16 in., 3/8 in., 7/16 in. and 1/2 in. The coupling has been successfully applied to oil burners, stokers, printing equipment, small pump units, and so on. Further information may be obtained by addressing Guardian Utilities Company in care of *Printing* EQUIPMENT *Engineer.*

Static

Electricity As It Affects Paper

With Comments by Wm. C. Glass[1]

PREFATORY NOTE[2]

THE Printing Industry Research Association received a request from the British Federation of Master Printers to collect data on the subject of static electricity on paper. Since the matter was also of interest to rotary printers, the scope of the inquiry was widened to include newspaper and magazine printing. Questionnaires were circulated to certain members of the British Federation of Master Printers, the Newspaper Proprietors' Association, and the Newspaper Society, and the information received through these channels has been incorporated in this report. The replies received to many of the questions were surprisingly contradictory, but it is believed that the information contained in this publication can at least be supported by experimental evidence. There is always a danger in an investigation of this kind of accepting as correct, views which are widely held or which are apparently "common sense," whereas there may be no evidence to support their validity. In view of the striking lack of quantitative data on the phenomenon of static electricity on paper, it is clear that the whole subject could very profitably be studied experimentally to determine by accurate measurement how the many factors affect the nature and magnitude of the charges produced. If this were done it is more than probable that the difficulty of static electricity on paper could be eliminated at its source.

ABSTRACT—*Static electricity on paper arises from the paper being subjected to friction and pressure when its moisture content is low and the surrounding atmosphere has a low relative humidity. Several methods are suggested for minimizing the difficulty: (i.) using paper with a high moisture content in atmospheres of relative humidity in excess of 45% r.; (ii.) "airing" the paper before use; (iii.) increasing the moisture content of the paper by damping, use of steam chamber, glycerine, etc.; (iv.) earthing the charge on the paper by conductors or earthed points held near the paper; (v.) electric neutralizers.*

[1] *Memorandum No. 8.* Issued by The Printing Industry Research Association, England. *Printing* Equipment *Engineer* is printing some comments by William C. Glass, member of the American Society of Mechanical Engineers, and founder of the Printing Industries Division.

Many mechanical executives are well aware of the effects created by static electricity in the pressroom. Likewise, many of them have not had the opportunity of studying either this *Memorandum No. 8* issued by the Printing Industry Research Association, nor Mr. Glass's paper, "Static Electricity," which was prepared for presentation to the Printing Industries Division of the American Society of Mechanical Engineers.

In this connection we are printing some important conclusions abstracted from Mr. Glass's paper which it is felt are essential to the subject and will help the mechanical or production executive obtain a better understanding of the causes and the means for neutralizing static electricity in the pressroom.

Any mechanical executive of a printing plant wishing a copy of Mr. Glass's paper "Static Electricity," may secure it by addressing him in care of *Printing* Equipment *Engineer.—Editor.*

[2] *Comment by Mr. Glass:* I think it must be evident from a careful reading of this Memorandum No. 8, including particularly the "Prefatory Note" that the conclusions which are inferred, if not actually stated, are first, that static is a cause of trouble and expense in printing operations and secondly, that there are no practical ways known effectively to prevent the generating of static in printing operations, regardless of the amount of study, investigation or research to which the matter has been or may be subjected.

INTRODUCTION

IT IS a well-known fact that any material, whether a conductor or non-conductor, which is sufficiently well insulated will, if rubber, become charged electrically. Static electricity can however be generated by other means than friction, such as pressure, cleavage, or the sudden separation of two surfaces. Static electricity is a problem in a number of other industries besides printing and papermaking; the cotton, wool, silk, rayon, cellophane, rubber, laundry, and photographic film industries are all affected. In other connections it is also important; for example, when fuelling aeroplanes precautions have to be taken that the friction between the petrol and the feed pipe does not generate sufficient static electricity to cause sparks and so ignite the petrol.

It is interesting to note that paper is such a suitable material for becoming charged that many instruments for the generating and detection of static electricity are constructed of paper.

What Is Static?

Specifically, nature has established that static electricity is a manifestation of electrical phenomena produced by the intimate contact of two dissimilar substances. It appears in the form of charges which are static, or stationary, and these charges may be of a positive or negative polarity and of various degress of intensity. Nature has established that such static charges can be rendered ineffective absolutely under all conditions only by bringing them into contact with equal and opposite charges. It has been established that unlike charges attract while like charges repel each other. Having learned these laws, then the problem is to apply them in an efficient manner, and this is where the name Chapman becomes identified so intimately with this field of research, his investigation having covered a long period of years.

The Chapman principle consists in maintaining an alternating, or positive and negative field of from 10,000 to 15,000 volts through which the electrified material is made to pass. In the passing, any charge in the material, whether positive or negative, is instantly neutralized by the natural affinity that such a charge has for an equal amount of the opposite kind.—Excerpt from paper on "Static Electricity" by Wm. C. Glass.

STATIC ELECTRICITY

In order to understand the phenomena associated with static electricity on paper, and to determine the best steps to take for its elimination, it is necessary to appreciate certain facts concerning static electricity generally.

These are:

1. Any properly insulated body can be charged electrically.
2. All bodies are more easily charged when dry.
3. An electrified body in air tends to lose its charge. Air is a better conductor of electricity when moist than when dry and consequently electrical charges leak away more easily in moist air.
4. Electrical charges are of two kinds, negative and positive.
5. Charges of the same kind repel each other; unlike charges attract. Uncharged bodies are attracted to charged bodies.
6. The kind of charge given to a body by friction or pressure depends upon the nature of the two bodies coming into contact. If one body is charged negatively the other will be charged positively. The negative and positive charges so produced will be of equal magnitude.
7. The electrical charge on an insulator remains where it is applied or generated but on a conductor it is distributed over the outer

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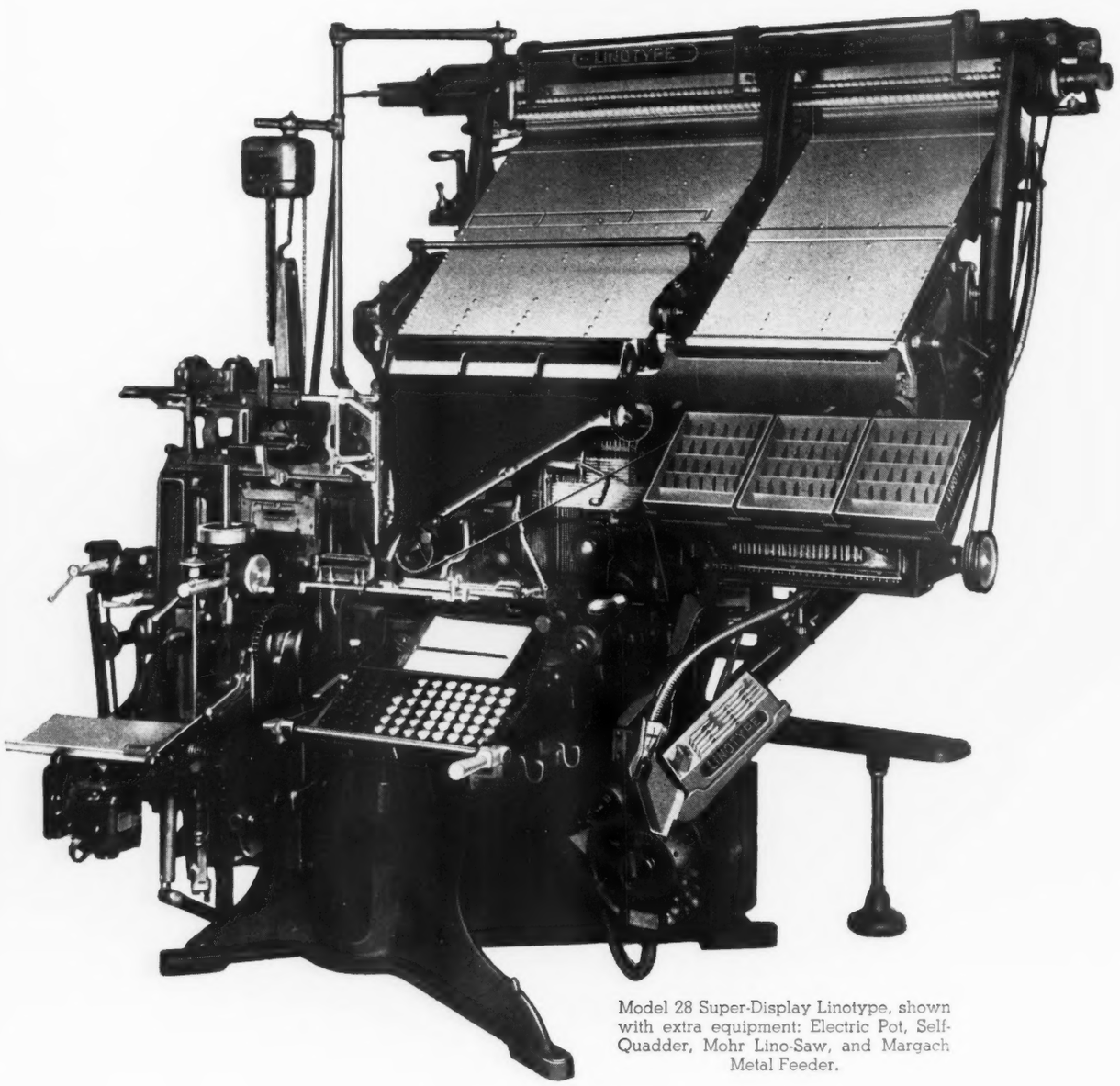

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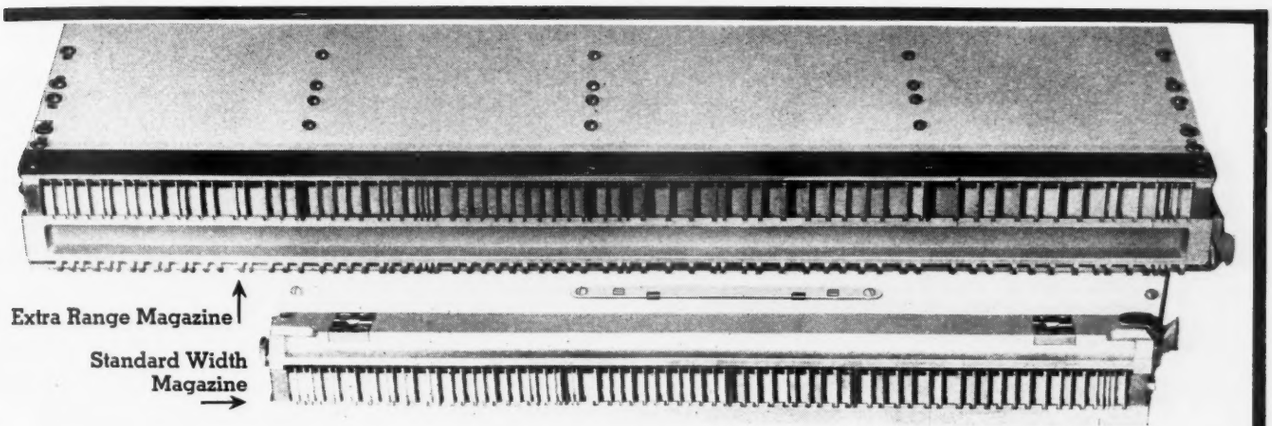

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surface according to the latter's curvature, the charge being most intense at the points of greatest curvature.

8. If a pointed and earthed conductor is held near an electrified body, the charge will rapidly leak away to earth through the conductor.

ELECTRICAL CHARGES ON PAPER

Bearing these points in mind it is possible to understand how electrical charges arise on paper during manufacture and use, and to see what steps should be taken to overcome the difficulty.

Troubles Caused by Static

It is true that static is many times cited as an alibi for mechanical troubles, but in the great majority of cases the elimination of such static disturbances as do exist reacts to simplify the usual mechanical problems. This is especially noticeable in certain types of automatic paper feeders.

The truth of this claim has been demonstrated under many and various conditions. For example, static acts to prevent quick and accurate registering of the sheet at the guides, with poor register as the only possible result in the case of multicolor work, especially when produced on single-color presses. Many times a job will be running perfectly when the press is shut down for the night, but it simply will not run at all the next morning until the feeder has been adjusted An analysis will show that the mechanical conditions have not changed overnight, but that undoubtedly the temperature and atmosphere have changed, resulting in the greater susceptibility of the paper to the generation of static. A neutralizer bar at the drop rolls near the ridge on the conveyor of the feeder will very quickly demonstrate that static and not the feeder mechanism is to blame for the trouble.

It is true that changes in temperature and atmospheric conditions are two of the primary breeders of static disturbances, but it is not true that static electricity cannot accumulate when paper is humidified to a certain predetermined degree or when worked in a certain predetermined temperature. It may well be true that a uniform relative humidity of 60 per cent is important to secure the proper register, but that does not by any means solve the static problem. It may well be true that a heater on a press may assist in skin-drying the ink to help prevent offset, but neither does this expedient solve the static problem.

In the printing industry flash fires are not a source of serious trouble except in rotogravure printing. In rotogravure presses, however, the fumes from the ink are highly inflammable. The copper printing cylinder and the rubber-covered impression roll, with the paper running between them, make a very efficient static generator. The static thus generated builds up until no more can be held, as in the case of a Leyden jar, when it discharges in the form of sparks to the nearest ground. Since the copper cylinder rotates in the ink, such discharges necessarily take place over the ink fountain, where the inflammable fumes are always present. The result is fire. By installing inductor bars at the impression, the static is eliminated as it is generated and his danger from flash fires is removed—Excerpt from paper on "Static Electricity" by Wm. C. Glass.

Paper, if subjected to friction or pressure, etc., may become charged electrically and this will happen most readily when the paper is dry and when the relative humidity of the surrounding atmosphere is low. Dry paper and dry air are poor conductors of electricity and consequently under these conditions paper may be regarded as "sufficiently well insulated" to become charged electrically. On the other hand moist paper and moist air are far better conductors and under these conditions paper cannot readily accumulate an electrical charge, since any formed will be immediately conducted away.

It should be realized that low indoor relative humidities can be experienced at any time in the year, but they occur most frequently in the summer and winter months. The relative humidity of an atmosphere depends upon its moisture content and temperature. If the temperature increases and the moisture content remains the same the relative humidity will decrease. Thus, in the winter months, although the weather may be damp the outdoor temperature is low, and when the cold air is warmed inside the building its relative humidity will decrease and may fall to a value at which static electricity readily occurs. In the summer months in a prolonged drought the outdoor relative humidity may be low, and thus the indoor relative humidity will also be low unless the incoming air is cooled.

NATURE OF CHARGES

Certain observations have been made which give some indication of the kind of charges which arise on paper during its travel through the printing machine. On most rotary printing machines the paper is subjected to the greatest amount of friction and pressure at the moment of printing, i.e. between the impression and plate cylinders, and it is after this point in the travel of the web that static electricity is most in evidence. Cases have been observed in which a web which was uncharged before printing had an intense charge after leaving the second impression cylinder. On flat-bed machines much the same conditions occur, but it has been noticed that the sliding of sheets down the feed-board and along the delivery mechanism will definitely result in the paper becoming charged.

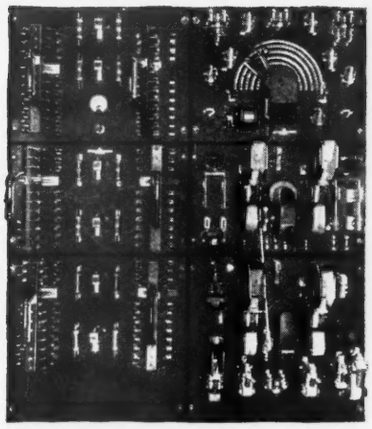
If paper is rubbed with felt, metal, rubber, leather, etc., it usually becomes charged negatively and the charge is approximately of the same magnitude and sign on both sides of the paper. It is usual therefore to find that the paper, after passing through the printing machine, has a negative charge on both sides of the sheet and the parts of the machine with which it has come into contact usually have a positive charge unless they are earthed. The fact that the paper is charged negatively and parts of the machine are charged positively accounts for the paper sticking to the feedboard, delivery mechanism, etc. It is not suggested however that conditions do not arise in some instances where the paper becomes charged positively and the machine negatively, since the nature of the charges will depend upon the materials coming into contact with the paper during its passage through the machine.

If two sheets of paper are rubbed together, one sheet is charged negatively and the other positively, the charges being of the same kind on both sides of the same sheet. This fact explains why it is difficult to separate sheets from the pile when the paper is charged electrically. The friction and pressure to which the paper has been subjected result in alternate sheets being charged negatively and positively and the force of attraction between the electrical charges of opposite kinds prevents the sheets being separated readily.

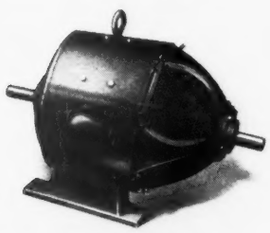
PAPER MAKING AND STATIC ELECTRICITY

On paper-making machines conditions are extremely favorably for the generating of static electricity. The web of paper is dried by heated metal cylinders and the frictional forces and pressure acting on the paper as it passes over them and through the calender stacks is sufficient to produce electrical charges of high voltages, and it is common to obtain sparks several inches long from the paper when being reeled up unless precautions are taken to discharge it by earthing wires or some other means.

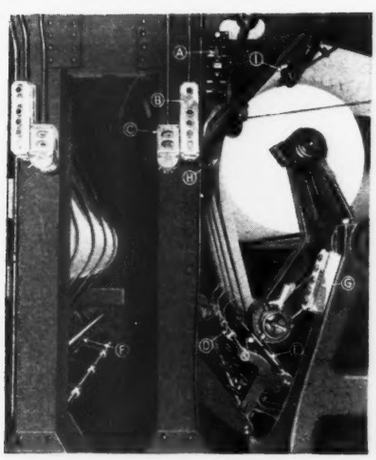
It has already been pointed out that an electrified body tends to lose its charge on storage particularly in fairly moist atmospheres, and paper which is stored under these conditions will eventually become discharged. This arises in two ways; first, the moisture content of the paper will increase, making it a better conductor, and secondly, the surrounding moist atmosphere will conduct the charges away fairly readily. For these reasons it is usually found that paper



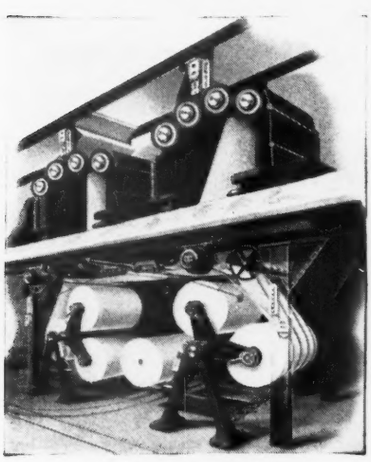
Unit type press drive controller and selector switch panel for black and color units.



Unit Type Motor



High Speed Paster interlocked with press control.



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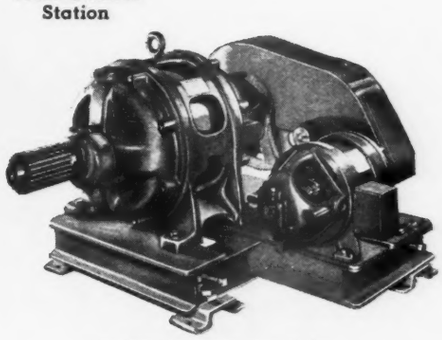
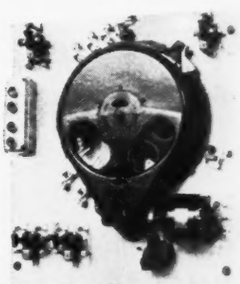


Double Motor Press Drive Alternating Current



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which is freshly made gives more trouble with static electricity than one which has been "matured," but it must be understood that it takes a long time for the atmosphere to appreciably affect paper which is stored in tightly wound reels or in large stacks.

Many of the replies received to the questionnaire circulated suggested that static electricity on paper was solely a matter for the paper-making industry. This attitude is, however, difficult to justify, since paper is subjected to friction and pressure, etc., elsewhere than in the paper mill, and if the paper and the surrounding atmosphere are sufficiently dry it can become charged electrically at any time in its history. The moisture content of paper is not constant but depends upon the relative humidity of the surrounding atmosphere, which is always changing, and *it is quite possible for paper to leave the paper mill free from static electricity and yet to be strongly charged when on the printing machine.* After leaving the mill the moisture content of the paper may decrease and in handling and printing the paper is subjected to pressure and friction, and under these conditions static electricity will undoubtedly arise.

It is, however, a definite advantage from the point of view of eliminating static electricity if the paper can be supplied for printing with a high moisture content. It should be realized that the accurate control of moisture content of paper on the paper-making machine is a matter of some difficulty. Frequently the class of paper being produced may demand that it should have a low moisture content and, moreover, there is no means of determining rapidly what the moisture content of a paper is.

It is the general opinion among printers and paper-makers that smooth surfaced papers are more susceptible to static electricity than rough papers. It is a well known fact that electrical charges are most easily dissipated from points, and consequently a rough paper may tend to lost its charge more readily than a smooth one because fibres standing up on the surface may act as discharge points.

Static electricity appears to be more troublesome with papers of low substance, this being due to the fact that materials light in weight are more easily affected by the forces of attraction and repulsion arising from the electrical charges. The dimensions of the paper do not appear to affect the problem much beyond that a large sheet is more difficult to control if static electricity causes trouble.

No evidence has, as yet, been forthcoming which suggests that the formation of the sheet is a factor affecting the susceptibility of a paper to static electricity, but it would be useful to examine this subject a little more closely than has hitherto been possible.

An interesting communication was received from Herr Alphonse Baruch of the Automat-Papier-Fabrik of Hamburg. He stated that the difficulty of static electricity in paper has been successfully overcome in his business by having the paper specially made to contain about 2.5% of common salt. This material being hygroscopic tends to increase the moisture content of the paper, and being itself a conductor will not allow any electrical charges to accumulate. He states that "the use of paper thus impregnated [with common salt] shows no disadvantages as to any qualities of normal paper; on the contrary, and as several years' practice have corroborated."

PRINTING PROCESSES AND STATIC ELECTRICITY

It is very probable that if the moisture content of paper and the relative humidity of the atmosphere are both sufficiently high, that the paper can be used under all normal conditions without fear of static electricity arising. There is some evidence which leads to the view that a relative humidity in excess of 45 per cent will in normal cases prevent troubles from static electricity arising (see subhead: "Overcoming Static Electricity"). It is not possible to suggest a suitable value for the moisture content of paper, since printing conditions and class of paper necessitate that each case be considered individually.

One possible cause of static electricity in paper may be the treatment which it receives in transit and handling. The paper is subjected to the pressure of its own weight, either in the ream or in the reel, and to a certain amount of vibration in transport. Both of these factors may charge the paper and the alternate sheets will be charged oppositely so that they will cling together.

In actual printing there is ample opportunity for static electricity to arise. On sheet-bed machines the feeding action causes one sheet to be rubbed against another and against the feedboard, and this again will cause electrical charges to arise on the paper if conditions are suitable. At the moment of printing, the impression and the separation of the sheet from the form and impression cylinder are further means of generating static electricity. The delivery mechanism on a flat-bed machine also subjects the sheet to friction by tapes, sticks and other sheets in the pile. All these operations may give rise to static electricity.

On web-fed machines conditions are similar. The unwinding of the reel of paper at high speeds, the pressure and friction at the printing cylinders and the passage of the paper over pipe rollers, turner bars, former, etc., may all generate static electricity.

It appears that the most trouble from the static electricity arises in rotary photogravure printing. This is understandable since the printed paper web is dried by heat and consequently its moisture content is reduced, and it is therefore more liable to become charged. In addition a heavy impression is used in this process and the paper is subjected to a considerable amount of friction. The least trouble is experienced in lithographic printing, particularly in direct litho, where the paper comes into direct contact with moisture on the impression surface. The evaporation of water from the damping fountain and rollers will also result in the relative humidity of a lithographic machine room being generally higher than a similar letterpress machine room. These two factors are responsible for the comparative freedom of the lithographic process from static electricity.

The trouble does not seem to be any more acute on rotary presses than flat-bed machines, although high speeds accentuate the trouble, all other things being equal. On rotary gravure machines static electricity is more troublesome at low speeds, since the paper is in contact with the drying cylinders for a longer time and consequently its moisture content becomes lower. The class of printing machine does not seem to affect the problem greatly. The nature of the ink and the amount of impression within the limits commonly used in printing are apparently not important factors, although stiff inks and heavy impressions aggravate the trouble slightly.

The material from which the form is made does not affect the amount of static electricity generated; it appears to be as prevalent with a form which is an insulator, such as rubber, as with a metal form. The nature of the cylinder dressing does, however, appear to affect the problem, it being the general opinion that smooth hard surfaces give rise to static electricity more easily than soft packing, but it is believed that the most important factor in printing technique controlling the amount of static electricity generated is the *amount* of cylinder packing. The cylinder should be dressed so that the form and the impression cylinder are travelling at the same speed. In this way frictional forces at the time of printing will be reduced to a minimum.

OVERCOMING STATIC ELECTRICITY

1. Control of Moisture Content of Paper and Relative Humidity of Atmosphere.—Since static electricity occurs most readily with dry papers used in atmospheres of low

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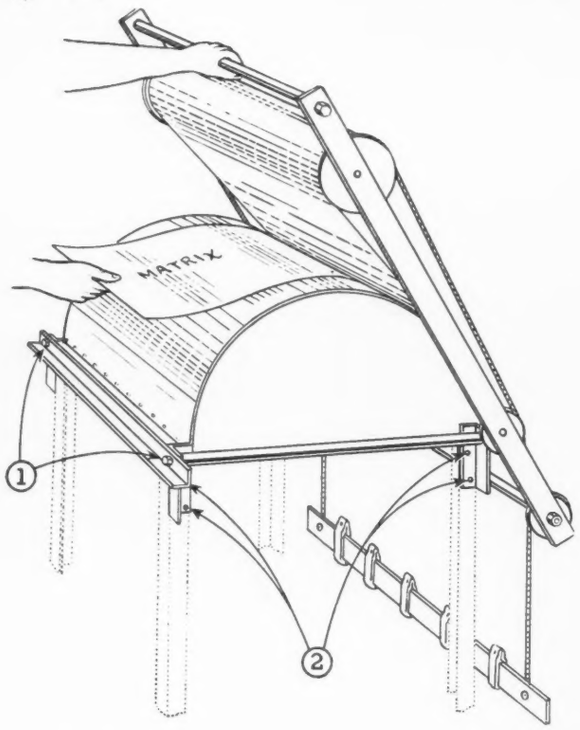

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relative humidity, one way of minimizing it is to insure that the paper has a reasonable high moisture content and that the relative humidity of the room in which it is used does not fall below 45%.[3] It is interesting to note that several firms answering the questionnaire had one or more of their flat-bed machine rooms equipped with a humidity control plant, and in every instance complete freedom from static electricity in the air-conditioned areas was reported.

However, even though the relative humidity may be well above 45%, it is possible that static electrical troubles may be experienced with a very dry paper, and for this reason it is a wise precaution to allow the paper to mature in a reasonably moist atmosphere for a short time before use. It is pointed out once again that a large stack of paper or a tightly wound reel is not easily affected by the atmosphere, and under these conditions its moisture content may remain low for long periods and render the paper susceptible to static electricity. Thus it is common to find, particularly in rotary printing where the paper, of necessity, is frequently used without "maturing," that static electricity is troublesome even though the relative humidity of the machine room is greatly in excess of 45%.

2. *Maturing Paper.*—One of the methods used to mature or "air" the paper with the object of reducing the amount of static electricity is to run it through the machine before printing, but it should be realized that there are two opposite effects operating. First, "airing" the paper tends to dissipate the charge, and secondly, the frictional forces acting on the paper as it passes through the machine tend to increase the charge. If the effect of (1) is greater than the effect of (2) the paper will become more free from the static electricity, but if (2) is greater than (1) the paper will become more intensely charged.

3. *Increasing Moisture Content of Paper.*—Another method of overcoming static electricity is to increase the moisture content of the sheet and surrounding atmosphere artificially. The simplest method of doing this is to damp the edges of the sheet or reel in some way, such as hanging a moist felt blanket near the paper, or passing it through a steam chamber. A similar effect is obtained by smearing glycerine or some similar hygroscopic substance on the feedboard or delivery mechanism of flat-bed machines.

4. *Earthing Charge on Paper.*—[4]Another method of removing static electricity in the paper is to conduct the charge away from the sheet, and various well-known methods have been used with mixed success. One such method is having an earthed conductor, such as a wire, metal strip, etc., in contact with the sheet, but it must be remembered that dry paper is not a particularly good conductor of electricity, and unless the earthed conductor comes into actual contact with the charge (i.e., with most of both sides of the sheet) it may not be discharged. Another method is to arrange a series of earthed conducting points, as for example fine wire brushes or tinsel wrapped round a wire, close to the sheet. This method utilizes the well-known effect, made use of in the lightning conductor, that points will dissipate electrical charges. It is worth noting that a flame can act as a discharge point and the gas heaters fitted to many flat-bed machines help under certain conditions to discharge any electricity there may be in the paper. At the same time this method tends to reduce the moisture content of the sheet slightly, and thus renders it more liable to static electricity if subjected immediately afterwards to frictional forces.

5. *Neutralizing Charge.*—[5]A common and effective method of discharging static electricity on paper is by the use of "electric neutralizers." As is well-known these neutralizers consist of a series of fine metal points which are given an intense charge of electricity by induction using a high-tension alternating current. Thus they are alternately charged negatively and positively. The charge leaks away from these points, and neutralizes any charges of an opposite sign which may be on the paper. A high-tension discharge of this kind also ionizes the surrounding air so that it becomes a conductor, and any charges on the paper will leak away. It is the practice to fit these neutralizing bars so that the paper passes beneath the charged points on its passage through the printing machine; for example, on the feedboard and delivery mechanism. Other methods have been suggested for discharging electrified bodies by ionizing the surrounding air so that it becomes a good conductor, by the use of X-rays or radio-active material.

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[3]*Comment by Mr. Glass:* The general indication that a relative humidity of 45% may be the dividing line between the condition of static trouble or no static trouble is not borne out either in fact or in practice. It should be observed that the speed of the paper is an important factor to be considered, for we know that in an atmosphere of 70% relative humidity or more a high speed press may develop great static trouble even with paper that has been well "matured."

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[4]*Comment by Mr. Glass:* In connection with "4. Earthing Charge on Paper," it should be noted that a smooth grounded surface of metal brought in contact with a charged sheet of paper will not conduct away its charge even though the whole sheet is in intimate contact with the metal. On the contrary, the charge becomes so "bound" that none of it will be removed by dragging grounded tinsel conductors over it. There must be air space back of the sheet for the tinsel or grounded points to take effect. With an air space back of it, the charge on the paper is free to act by induction on the metal points or tinsel and excite a corona discharge which ionizes the air and this conducts away a certain portion of the charge. The air must be ionized next to the paper to secure the intimate conducting relation to its surface that is necessary because dry paper is such a good insulator. The ionizing process requires a certain minimum potential of the order of several hundred volts and when the paper has arrived at that minimum potential the reducing process ceases and there is more or less residual charge left in the paper.

To bring the charge on the paper down to zero, it is necessary to have some outside means of maintaining an adequate ionizing potential independently of the charge on the paper itself. It is important to bring the potential of each individual sheet of paper down to zero before it is laid on the pile, otherwise, each sheet delivers its quota to the pile and the accumulation of charges there become troublesome.

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[5]*Comment by Mr. Glass:* "5. Neutralizing Charge," refers to the electric neutralizer as "a common and effective method of discharging static electricity on paper." We are quite content to leave the matter there. It is a well known fact that much study has been directed to the problem of finding a less expensive substitute for the electric neutralizer or a means or method of preventing the generating of static electricity so that it would not have to be removed.

I do not fear contradiction of the statement that no practical means has yet been developed to prevent the generating of static electricity and I submit that the Report in question corroborates this assertion.

New Fan for Rollers

A new electrically-driven roller fan for all high-speed automatic presses has just been placed on the market by the New Products Division, American Type Founders.

The ATF Roller Fan assemblies consist of 9-in. motor-driven fans applicable by the use of brackets, to the Style B, the No. 1 and No. 2 Kelly Presses. A pedestal mounting is provided to adapt the fan to many other styles of high-speed automatic presses.

This fan is designed for cooling composition rollers during the summer months.

The fans are sturdy, well-ventilated and have generous bearing surface to adapt them to the long-hour service which is required for this application. They are supplied with ten feet of cord and molded rubber plug, are easily attached and provide adjustment for position. The pedestal unit can be placed in any convenient location so that air movement can be directed as desired.

They are made for 110 or 220 volt direct current; and 110 or 220 volt, 50 or 60 cycles alternating current.

TAKE YOUR PROBLEMS TO THE CONVENTION- WHERE THEY WILL BE SOLVED TO YOUR BENEFIT

BURGESS CHROME MATS

DURING the A. N. P. A. Mechanical Convention at Detroit, be sure to come to the Burgess suite at Statler Hotel, Room 1128. We'll be glad to go into your problems and discuss them with you.

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BURGESS CHROME MATS

BURGESS CHROME MATS

BLANKETS FOR EVERY MAKE • OF PRESS

BLANKETS TO MEET EVERY PRESS CONDITION

The Latest Hi-Speed Automatic Felt Blanket

When your press is dressed with this blanket, you have the assurance that you will print a clear, sharp newspaper, to the utmost satisfaction of your advertisers and also your reading public.

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We also manufacture:

The Economy (Silver Face) Felt Blanket.
The Monocork Blanket.
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BLANKETS UNCONDITIONALLY GUARANTEED

Roll-Up

Process for Etching Halftones

By STAFF WRITER

THE art of producing halftone plates has been brought to a high standard in the Minneapolis *Tribune* engraving department of which Ernest Scherer is in charge. Of course, the presence of Mr. Scherer is of great importance to the etching of plates but the most important factor in that department is the Roll-Up ink process of etching.

This process was discovered by Mr. Scherer in 1928 and was used in Omaha, Neb., on the Omaha *Bee-News* for one year until litigation tied it up. Finally, in 1933 all legal difficuties were cleared away and now after a period of several years the Roll-Up ink process is functioning smoothly under Mr. Scherer's direction at the Minneapolis *Tribune*.

Fig. 1.—The plate is laid on a flat table and the engraver applies the "Roll-Up" acid-resisting ink, rolling it to spread it evenly over the surface.

The process is the same as any other engraving process up to and including the step where the original photograph has been transferred to the plate. Up to that stage it is no different than the work being done in hundreds of other engraving departments all over the country.

At that stage Mr. Scherer's skill begins to operate in the cold enamel that is applied to the plate. This enamel, also a development of Mr. Scherer's is flexible and breaks with the metal when the first bite is given the plate in the acid bath.

Now comes the Roll-Up ink proceeding. This ink caps the highlights and permits deep, clear etching of the middletones and shadows. In applying this ink, the plate is merely laid on the ink table and the ink applied with a roller. If successive bites are required to bring out all the tonal qualities of the original photograph, successive applications of ink may be given the plate.

Since the cups on the face of the plate have been protected, first by the cold enamel and then by the Roll-Up ink, there is no undercutting of these cups and they take a pyramidal form.

This pyramidal form is very important to further developments in the transfer of the picture to the printed page for because of it much time and money is saved later on for two reasons: First, the cups being pyramidal, the mat springs loose from the cut when the page is matted, eliminating "fuzzy" or spoiled mats. This is especially important on The Minneapolis *Tribune* for the paper is a Wirephoto member and is consequently loaded with cuts running all the way from eight-column layouts to half columns. Almost every page has pictures—lots of them, and Walter Watson, stereotyper, states that with the Roll-Up ink process the daily grist

Fig. 2.—The plate, rolled up, goes into the etching machine, after being treated by the Scherer Roll-Up Process. Here it is, ready for the final etching operation—exposure to the acid.

of about 100 pages is handled with ease.

The second item, according to Mr. Scherer, is that since the plate is deeply etched sharp impression of halftones and type are obtained. The plates do not fill up with ink very quickly and the pressroom run has been stretched to around 100,000 impressions before recasting.

To metropolitan newspapers there is another feature of immense importance. That is the speed with which plates can be made.

Under the Roll-Up ink process the plate is rolled up and burned in at one operation. It is put into the acid bath and immediately starts to etch because the plate is clean all over.

Monotype Earnings

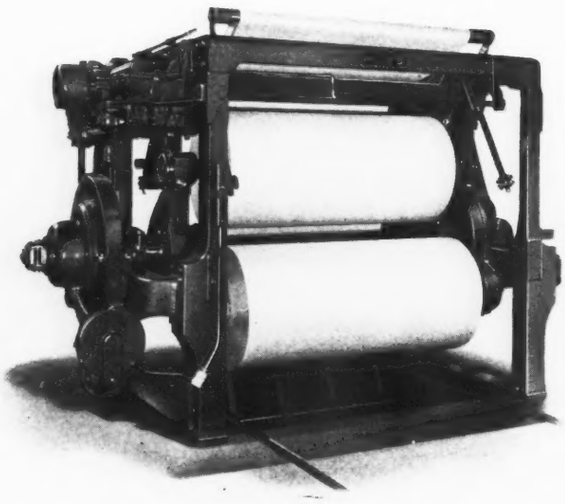
In the annual report of Harvey D. Best, president of The Lanston Monotype Machine Co., which was presented to the meeting of the stockholders in Alexandria, Va., on May 2, it is shown that a substantial increase in volume of sales over the previous year resulted in net earnings of $90,028.06, which is equal to $1.67 per share on the capital stock outstanding as of February 28 this year, after taxes paid and reserve for Federal tax amounting to $36,775.41, and carrying $141,114.72 to reserves for depreciation of plant and amortization of improvements and patents.

The president reviews briefly the six-year period from 1929 to 1935, during which time the company had net earnings of $1,681,394.22. Dividends amounting to $2,018,410.75 were paid. In the year ended February 28, 1933, there was a loss of $79,069.23 but earnings for two subsequent years overcame that loss.

It is stated in the report that while volume of manufacture has increased, inventories have been reduced through disposal of obsolete items and closer control. Under the "Liabilities and Capital" section of the treasurer's balance sheet it is shown that the company has no accounts or notes payable.

THE WOOD FULL-SPEED RO

Composed of the New Wood A



The AUTOREEL

1. Prevents webs from running to left or right and insures evenly lined-up margins. Prevents web breaks and waste of time and newsprint caused when a web, fed by an inaccurate magazine real, has to be lined up forcibly.

2. Paper rolls are put in register with the running web before going into action. No shifting of web for register after it has started to run.

3. Autoreel "spiders" are moved by power, quickly and without effort, when changing paper width.

4. Automatic tension consumes no current, needs no attention, and eliminates double printing.

5. Autoreel pasters are made full width of the paper roll and do not pull apart as pasters frequently do when made against straps or belts.

6. Web is cut away from the core with a knife after paster is made, leaving a neat, short tail. Fewer copies thrown out. No danger from using hands or feet to break webs from cores.

Because of the accuracy of folding which they insure, eight Wood Magazines are being used in

The Autopaster is in use in New York, Cl

WOOD NEWSPAPER MACH

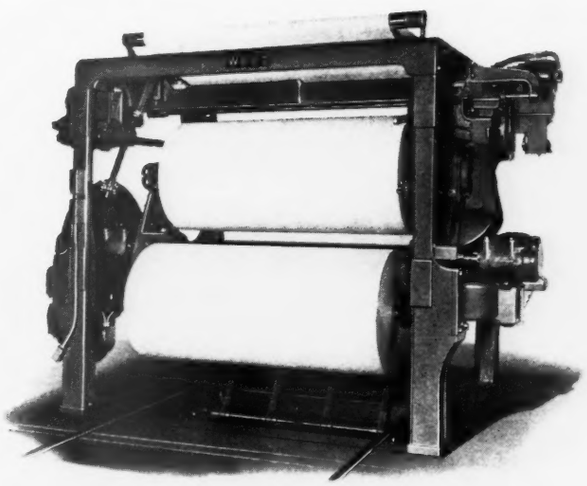
MAKERS OF FINE NEWSPA

501 Fifth Avenue,

ROLL-FEEDING MAGAZINE

od Autoreel and the Autopaster

The AUTOPASTER



1. Replenishes a printing press with paper rolls while it is running at full speed.

2. Greatly increases the output of a press by keeping it running continuously without slowdowns.

3. Saves at least a third of the waste of newsprint which occurs when presses are slowed down for paper replenishment.

4. Promotes uniform and better quality of printing, eliminating the variations caused by changes of speed. Inking, impression, folding — all can be set for best results at one uniform speed.

5. Makes for better first-side printing by insuring proper register with the next sheet.

6. Eliminates web-breaks caused by frequent changes of speed.

7. Has been run successfully at all speeds up to 70,000 copies an hour. The greater the press-speed, the larger the savings.

8. Can be furnished either with the Wood Autoreel, as illustrated on these pages, or for application to any other make of reel.

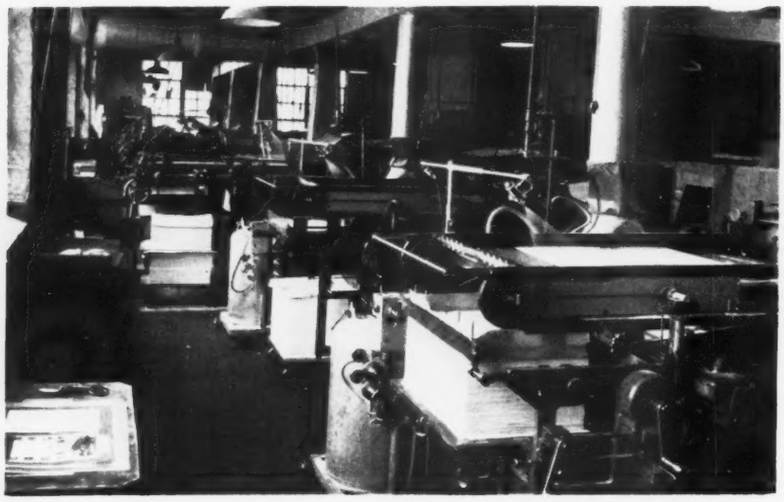
ing used in printing the New York Telephone Directory by the Jersey City Printing Company.

ew York, Chicago, Toronto, and London.

IACHINERY CORPORATION

NEWSPAPER MACHINERY

Avenue, New York



View of pressroom, Schmidt Printing Company, Chicago, a pioneer in automatic "No-Offset" installations. This firm specializes in color printing.

Offset

Banished From Chicago Pressroom

By R. J. McINDOE*

KING CANUTE was an optimist who thought he could sweep back the tide with a broom. But his job, until recently, seemed a cinch compared to the task mechanical executives have in contending with ink offset in the pressroom. No quality printer has to be sold on the belief that ink offset is a malignant spirit who takes delight in upsetting a promised delivery date or changing expected profits on a job into a loss. Every printer has paid tribute to Old Devil Offset in the form of extra costs for slip-sheet labor and press time. Like the locusts that come out of nowhere any time, ink offset seemed to be an inescapable plague.

*Superintendent Pressroom, Schmidt Printing Company, Chicago, Ill.

R. J. McIndoe, a Chicago Mechanical Executive, discusses relief from offset problem in his pressroom.

I had almost given up hope of ever overcoming ink offset or slip-sheeting until recently when a communication came to my desk from the Paasche Airbrush Company. This concern has a reputation for making the artist's work easier with air, for coating everything from zeppelins to pencils with air and for giving finishes to furniture and automobiles with air. When this concern stated that its engineers had found a method by which the printer could use air to banish ink offset from the plant, I was interested.

With an attitude of skepticism, we installed one unit of the Paasche "No Offset" Process. We hoped it would work. Here are some of the tests made in our pressroom after installing the first unit: We ran metallic inks at full press speed; we ran black inks over metallic ink; we examined the sheets at the bottom of the delivery pile and found them as clean as those at the top; we overprinted but could find no difference in the color of the inks, and we also used spot varnish.

We now consider the Paasche Process one of the most valuable accessories in our plant. It prevents offset and has not only eliminated the cost of slip-sheeting, but has stepped up our production on that class of work about 40%.

"Are you fully satisfied with the Paasche 'No Offset' Process?" a fellow craftsman recently asked.

"What do you think?" I answered. "We started with one unit and now have six. We plan to equip all our presses with them."

The success of this new process has resulted in considerable savings in slip-sheeting labor, press time, and paper spoilage. It has given us greater production capacity because we can always run our presses at full speed. Earlier and more definite delivery dates can now be promised because no allowance need be made for ink offset difficulties and uncertainties. Elimination of slip-sheeting helps to make fine quality impressions. Undoctored inks insure more nearly faithful reproductions.

New Traffic Manager

H. E. Stocker, well-known transportation man has been appointed traffic manager of American Type Founders Sales Corporation.

Mr. Stocker will continue as a regular contributor to trade press on freight handling, and beginning with the fall term, will give six courses in Transportation at New York University.

Now A Colonel

Walter Ogden, superintendent of the Cleveland *Press* pressroom, is now a colonel—a Kentucky colonel, if you please. He joined that ever-widening circle of Kentucky colonels just recently when he received through the mail a commission from Gov. Ruby Lafoon.

EXTRA **KLEAN-O-MAT NEWS** EXTRA

VOLUME I NEW YORK, MAY, 1935 NUMBER I

U. S. Government Printing Plant Installs Klean-O-Mat Process!

Largest Printing Plant in the World Adopts This Modern Method for Cleaning Mats and Magazines

Washington, D. C.—The United States Government Printing Plant, largest commercial plant in the world, has installed the latest type "KLEAN-O-MAT" equipment together with a large quantity of "KLEAN-O-MAT" Compound. This installation, most outstanding in the history of the Klean-O-Mat Company, was made after a thorough investigation on the part of executives of the Government plant.

The vast number of line-casting machine magazines and matrices are now cleaned with dispatch in the Government plant; the "mats" and magazines being cleaned in one operation, without running the "mats" out.

The manufacturers of the "KLEAN-O-MAT" Process point with justifiable pride to this installation of their equipment.

Klean-o-Mat PROCESS

"Klean-O-Mat" Users Are Liberal in Their Praise

From the smallest daily to the largest, users are unstinting in their praise of this modern method.

The Bethlehem, Pa., *Globe-Times* says: "Do not hesitate to refer anyone to us for we'll be glad to tell why we consider it a necessity."

The Hamilton (Can.) *Spectator* (Southam chain), writes: ". . . more than pleased . . . reduced errors more than 50% . . . operators amazed and pleased with elimination of errors and transpositions and relief from eye-strain."

A Scripps-Howard Daily, the Washington, D. C., *Daily News*, reports: "Results highly satisfactory . . . found no injury to mats, magazines or cams . . . false-walls not touched . . . consider a good investment."

An eight-machine daily (Jamestown, N. Y., *Journal*), states: "Performs well, work for which intended. Regard as useful and valuable . . . would again, under similar circumstances, purchase equipment."

From the Altoona, Pa., *Mirror*: "We want to tell you we are well pleased with results obtained."

The Wilmington, Del., *News-Journal*: "It really does what is claimed. Simple and easy to operate . . . consider old way of running mats out as obsolete as beating in wet mat with old-fashioned brush."

Type of Machine Installed In U. S. Government Plant

Above is pictured the latest model "KLEAN-O-MAT" machine recently installed in the Government plant in Washington. The Model "E" is equipped with double drive; reversible cover to permit cleaning cam racks (assembled); double shell, insulated drying chamber heated with "finstript" air-blast element and motor-driven fan which provides air-blast.

The Klean-O-Mat Co., 21 West Street, New York, manufactures three models and can fit any plant, regardless of size. A comparative cost analysis, based on your equipment, will be submitted without obligation.

Klean-o-Mat PROCESS

Cost of Operation is Surprisingly Low

The saving of time by cleaning mats and magazines in one operation, as well as the great reduction in errors; elimination of back tracking; double handling and extra proof reading more than justifies the moderate cost of the "KLEAN-O-MAT" Process. Every owner of line-casting machines, or his composing room executive, should write KLEAN-O-MAT COMPANY, 21 West St., New York, for complete details.

Canadian Government Printing Plant Also Uses and Enthusiastically Endorses the Machine Method

Ottawa, Can.— The Canadian Government Printing Plant, second largest Government plant on this continent, has long been a user of the machine method and in answering a Montreal inquiry, stated, "Yes, we use it — have used it for the past year — and find it the best."

In addition to those already mentioned on this page, other prominent users of the machine process are: Pittsburgh, Pa., *Sun-Telegraph* (Hearst); Portland, Me., *Telegram-Express*; Jersey City Printing Co; Harrisburg, Pa., *Patriot*; Service Linotyping Co., Toronto's leading trade composition plant; Maxwell L. Jones Co., Washington's largest trade plant, etc.

Satisfied users are the best endorsement for any product. A list of users nearest you will be furnished upon application.

Klean-o-Mat PROCESS

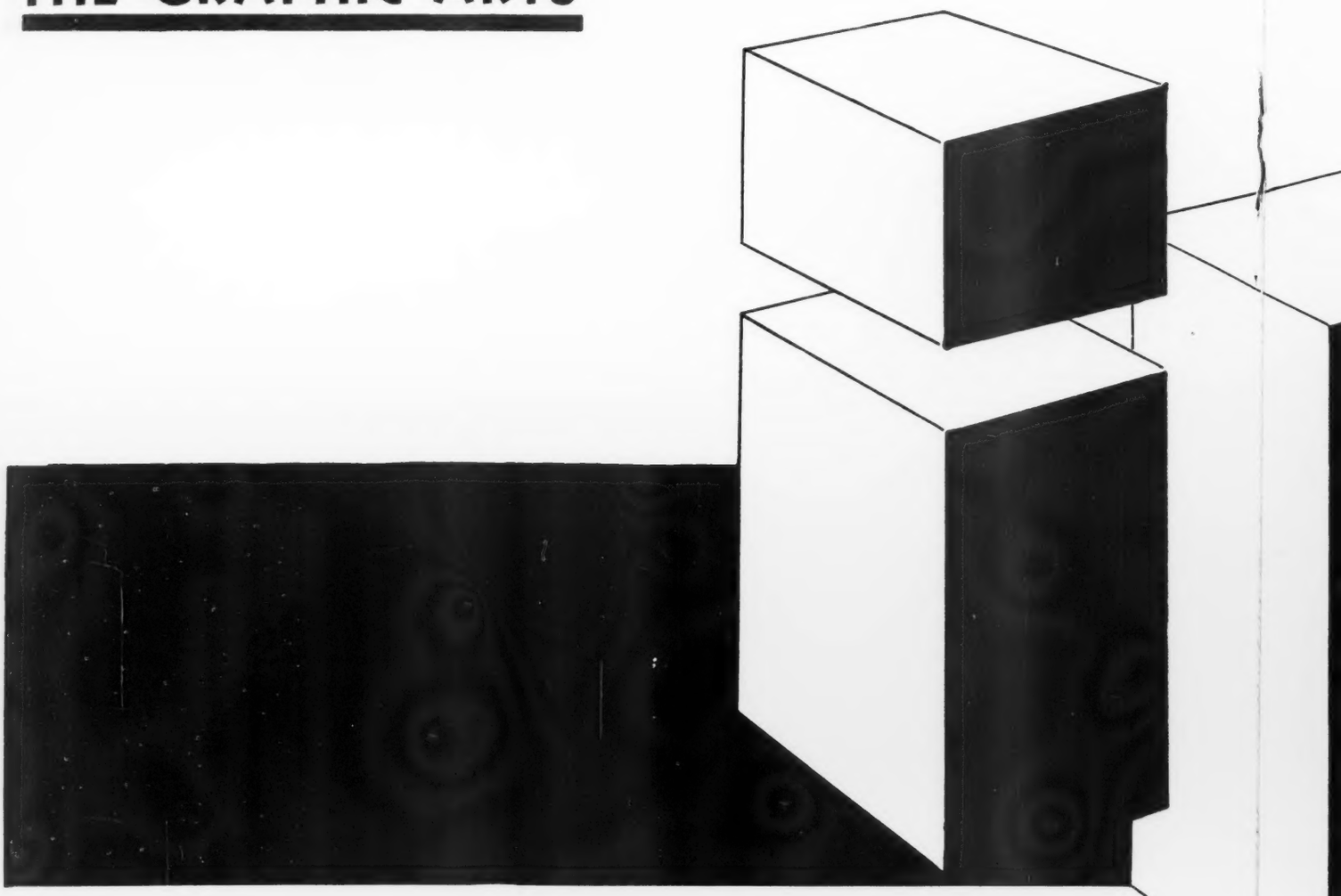
Klean-O-Mat Compound is Safe, Cheap, Harmless

Exhaustive tests made by, or on behalf of, users have conclusively proved that "KLEAN-O-MAT" Compound does not etch the brass nor harm "falsewalls" or side walls. Moreover, it has been proved that the Compound does not cause the slightest sign of "pitting." "KLEAN-O-MAT" is the lowest-priced compound on the market. In one city (Philadelphia), and suburbs, one salesman established over 230 new users for "KLEAN-O-MAT."

The Latrobe, Pa., *Bulletin*, wrote: "After using several, find compound everything claimed . . . mats and cams were in bad condition . . . after one application the results were unbelievable . . . no ill effects on face or walls, a matter of concern to us . . . feel investment is good one as time saved in clean proofs compensates for money spent."

From A. R. Saylor Printing Co., Wilmington, Del., comes the following: ". . . results accorded perfectly with claims . . . a distinct improvement in matter of "hang-ups" . . . on score of readability alone, "K-O-M" justifies itself . . . no eye-strain."

PRINTING INKS FOR EVERY BRANCH OF THE GRAPHIC ARTS



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I.P.I. has attained its position in the printing ink industry through the policy of keeping ahead of technical developments and sharing the knowledge thus secured with those engaged in the Graphic Arts.

The Research Laboratories, occupying a seven-story building, in New York, are equipped with every modern laboratory necessity for testing promising developments

THE INTERNATIONAL PRINTING

SOUND POLICY

and for initiating progressive moves.

I.P.I. has just completed a year's study of the subject of color, the results of which are shortly to be released.

It is at present engaged in a new approach to process printing which may have far reaching results.

I.P.I.'s contribution in the field of comic and web press inks is acknowledged in the industry but The Research Laboratories are continuously seeking improvement.

It has anticipated and met the needs of gravure printing throughout the development of this process.

It is this type of service which makes I.P.I. the logical source of help in solving any of your ink problems. A competent service man is available at each of the conveniently located branch offices.

INK CORPORATION • NEW YORK

An Appraisal

Of Foreman's Major Attributes

By LeRoy Church*

Writing on the subject of newspaper composing room foremen and page costs, two experts, in different issues of the same trade paper had much to say on the ever-popular topic. One of the writers, an ex-foreman, said among other things: "If a publisher seeks a new superintendent today, where will he find available facts in newspaper statistics that will lead him to his man?"

The other writer, a newspaper analyst, headed his article: "Publishers Partly to Blame for High Costs." This type of analyst receives a pretty penny for helping sick composing rooms.

The first writer can probably get all the statistics needed on the subject from the second specialist. When these figures are placed before the publisher they will no more solve his problem than has Roger Babson solved the problems of the stock gambler, or those seeking to invest their money properly.

The newspaper analyst referred to makes a comparison between two newspapers where the scale for printers is practically the same, but where the requirements differ vastly in the class of typography, etc. He states that one has a higher page cost than the other and states no check-up is made on the amount of ads a floor-man sets, while most type-setting machines are clocked.

Referring back to the title used by the analyst, I am convinced that the publisher is *all* to blame for high costs. True enough, many of them know nothing about production in the composing room (a deplorable condition when so much money must be spent for printers). In such cases the novice should seek the advice and cultivate the acquaintance of publishers who do know something about their own business.

Many foremen and superintendents are hired because of personal friendship, or a recommendation from a friend or another foreman who considers him worthy of advancement.

Several cases come to mind where foremen were placed in charge of composing rooms simply because they were good make-up men. Another foreman was elevated because of exceptional ability as a linotype operator, no other qualifications being needed. From results one could readily see they knew nothing about handling men and as far as the publisher was concerned, they need never learn this important part of the game.

When one finds the happy combination of a good printer, whether an all-around man or a specialist, and a man who knows something about the workings of the human mind, you can rest assured that page costs will be at a minimum, discipline will be good, rules will be obeyed and men will take keen delight in doing things right and doing enough that there will be no need of clocking the floor man to determine the amount of ads he should set for a day's work. Regardless of the page cost, the publisher will know these men have been worthy of their hire.

When Uncle Sam wants someone to head an army he picks a trained leader but when a publisher wants a foreman he frequently tries to find someone with a reputation as a driver instead of picking a leader. Thus the publisher becomes the party of the second part to the abominable plan of driving men and seldom if ever does it prove successful.

It is true, no doubt, that page cost is the most important equation in the mind of the average publisher. He expounds this doctrine to all department heads to the exclusion of any other practices. Nothing could be more ridiculous. Looking back, over more than thirty years spent in composing rooms (some of which were spent at foremanizing) I have observed that all the real successes in this line of work were leaders—not drivers.

Let the publisher subscribe to the doctrine of leadership in department heads and his page costs will be merely a matter of good bookkeeping. If he wants snappy typography, neatly made up pages and all the trimmings that go with a worthwhile product he will naturally expect to pay more for it than the paper we recall that used the slogan: "It's not a question of how it's done—*is it done?*"

Some newspapers permit the foreman to decide much of the policy of the paper, relative to what shall and shall not be done for an advertiser, or in what manner the news type should be set. Some publishers decide this for themselves, still others leave everything to the business manager or the managing editor.

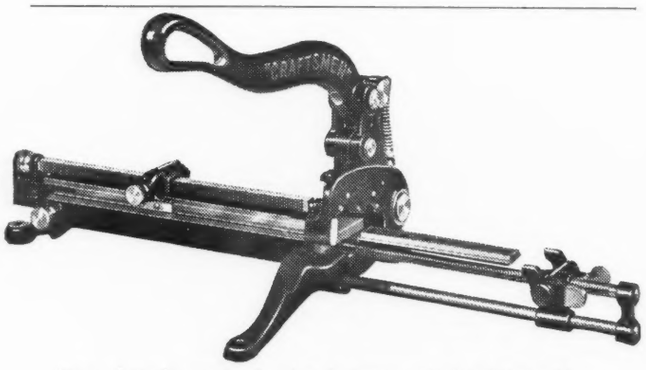
Isn't it rather foolish to imagine that page costs would be the same under such varying conditions? In like manner, isn't it just as ridiculous to imagine that any set rules or statistics can be applied that will lower the cost one iota where the publisher, business manager, managing editor or the foreman are not interested as to whether or not his employes are human beings?

The successful foreman will not only know page costs but will likewise know his men—he will be a student of psychology.

*Typographer, Akron (Ohio) *Beacon-Journal*.

Lead and Rule Cutter

The Craftsmen Machine Company has announced a Lead and Rule Cutter, a feature of which is called a finger-touch bed gauge. The gauge is constructed so as to slide on a square graduated bar as well as in two parallel grooves in the cutter bed. This construction will not permit thinnest material to slip under the gauge which has a capacity of 60 picas by points in its normal position. By pulling a knob, the bed can be extended to a continuous capacity of 100 picas by points. A micrometer point adjustment at the left of the bed gauge is self-adjusting by points. A finger-touch, self-locking end gauge at the right of the cutter slides on two stationary bars, the capacity of which is from 6 points to 46 picas.



View of Craftsmen Lead and Rule Cutter which is fitted with an adjustable knife to compensate for wear.

The cutter knife handle is balanced, has large bearings and tension springs. When the cutting blade has been reduced sufficiently through use or grinding, adjusting screws may be turned up to cause the knife to meet the stationary knife on the cutter bed. In this way it will never be necessary to use shims behind the movable knife. The knives are made of Swedish tool steel.

Further information may be obtained from The Craftsmen Machine Company in care of *Printing* Equipment *Engineer*.

Dispatches from Washington

cover nearly, but not quite, everything. They have failed, for example, to mention that every newspaper in the National Capital employs and endorses Kemp Immersion Melting with Gas. ☆ ☆ Not even the Kingfish is bigger news, to the publisher *himself*, than the fact that the Washington Star, the Washington Post, the Washington Times, the Washington Herald and the Washington Daily News all see eye-to-eye in the matter of metal melting. There are various reasons. But to begin with, Kemp guarantees to cut heat bills 40 percent or more. ☆ ☆ Never mind wiring your Congressman or Senator, just write The C. M. Kemp Mfg. Co., 405 East Oliver St., Baltimore, Md.

KEMP of BALTIMORE

Gravure

With Paper Blends to Secure Effect

By ROBERT F. SALADE

With the modern method of photogravure, produced on sheet-feed rotary gravure presses, both the character and color of the paper used are made parts of the picture, according to the particular type and color of paper used. In the finished product the pictures seem to stand right out of the paper rather than appearing printed on the surface of it. This is, of course, the result of the intaglio principle, and more so in gravure printing, for the ink is virtually lifted from the etched detail of the plate in the form of a *diaphanous* film and is laid upon the surface of the paper which may be any kind of stock ranging from fine hand-made antique finish paper to newsprint. The most remarkable feature of gravure "halftone" printing is that the solid areas remain densely solid and unpatterned by the paper, while the highlights and intermediate tones lend themselves to the character of the paper background which shows through, thus making the texture of the paper, as well as light and shade, an integral part of a "halftone" picture. For example, one gravure picture shows a view of an art museum with two women performing a classical dance in the foreground. This picture is printed in brilliant blue intaglio ink on light blue rough-finish cover stock. The results are highly artistic with the blue ink and the blue paper blending in many different shades of blue, the highlights and intermediate tones of the picture taking the light blue color of the paper with pleasing effects.

Although white paper of different grades and weights are being used to the largest extent for sheet-feed gravure in monotone, the use of colored and tinted paper stocks is increasing. All the many different shades of brown and black intagio ink may be used in printing pictures on the following tints of stock: India tint, cream, old ivory, light tan, fawn and pale buff. Other colors of paper are used to a limited extent for monotone gravure printing in black, green, blue and special dark shades. To provide for all classes of both rotogravure and sheet-feed gravure, in single colors, several of the large printing ink manufacturing companies are making intaglio ink in the following names of color:

Opaque brown, transparent brown, soft maroon, autumn brown, Persian orange, emerald green, night green, olive green, heather green, brilliant blue, tunis blue, royal purple, golden brown, titian brown, malay brown, Van Dyck brown, Rembrandt brown, chestnut brown, chocolate brown, briar brown, concentrated brown, Whistler black, velvet black, blue-black, green-black, silver grey, water brown and water green. (Note: A number of these colors [as named] are each made in several different shades. The include the heather green, brilliant blue, golden brown, titian brown, Van Dyck brown, Rembrandt brown, opaque brown, transparent brown, Whistler black, velvet black and blue-black.)

Special colors of intaglio ink are made to order, also special type of any desired color to provide the best printing from light etchings and deep etchings, respectively. Semi-transparent colors of ink are used for some kinds of monotone gravure printing, while opaque colors are used for gravure reproductions of display type and text matter, also for deep etched plates which require heavy inking for solid areas. Transparent colors are, for the most part, used for pictorial color rotogravure and gravure printing, yet the transparent colors have numerous uses in both monotone and two-color work.

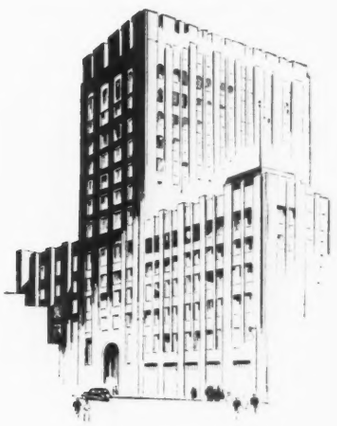
In the three-color process of pictorial gravure printing, the transparency of the intaglio ink is one of the outstanding features. With only the three primary colors—red, yellow and blue—an almost endless variety of photogravure work can be printed in full color with only three impressions. The reproductions may be of original oil paintings, water color pictures, commercial art designs, hand-colored and natural color photographic prints. According to the manner in which the intaglio plates are etched, and the combination of the three colors, the transparent colors of ink will each form a wide range of hues. Thus, the red tones may range from a deep shade to a delicate pink tint; there are dark, medium and pale shades of yellow; and with the blue ink the range of blue shades is remarkable. There is no question that with full-gravure carefully applied to the proper subjects, the work can be turned out with three colors and to better advantage than the same class of work printed in six or more colors by other methods.

That the gravure process is well adapted to the reproduction of type matter, with or without illustrations, is proven by the fact that a number of national magazines are printed by rotogravure, also that many kinds of advertising literature have both illustrations and typography reproduced by gravure. The text matter for the national magazines referred to is sharp and clear, yet is printed with a larger amount of ink than the same class of work printed by letterpress methods. The gravure printing of reproductions of typographical forms for advertising literature on white antique-finish paper is not only clear and sharp but has all the appearances of intaglio printing from engraved steel or copper plates. There is no question that forms of type of any kind, including fine display typography and masses of text matter, can be reproduced in an excellent manner by modern photogravure methods.

At the present time, some eight different makes and styles of sheet-fed gravure presses, each make of several standard sizes, are being used successfully in the United States. Several different makes and styles of rotary web gravure presses are also being used quite successfully. The sheet-fed machines, however, make possible the use of a large variety of paper stock, in many sheet sizes; accurate register of both monotone and multi-color printing is assured, and medium-size runs of work can be produced quickly and economically. Brief descriptions of two of the most popular makes and styles of sheet-fed gravure presses are offered as follows:

1. The first machine is known as a copper plate rotary sheet-fed gravure press. It is built in three sheet sizes: 20 by 26, 25 by 38 and 41 by 54 in. (A lay-down squeegee machine, with or without a registering device, is supplied for each size of this press.) Each press may be equipped with either a hand feeder or an automatic pile feeder and with an automatic pile delivery. These presses have an operating speed of from 3000 to 3400 impressions per hour. On each press the etched and polished copper plate for the run (about 0.034 in. thick), is attached to the plate cylinder in the same manner in which a zinc or aluminum plate is clamped around the plate cylinder of a rotary offset press. Among other features of this make of press are: Adjustable front gauges, tumbler grippers, quick change plate clamps, air and electric heating units for drying the printed sheets, and a simple ink distribution system consisting of one removable ink fountain, one steel fountain roller and one composition ductor roller. The presses are producing a wide variety of work, such as: Catalog and magazine inserts, covers, folders, broadsides, booklets, blotters, labels and other forms of printed matter adaptable to the gravure process.

2. This press is known as a copper cylinder sheet-fed rotary gravure press, and is built in four standard sheet sizes: 15 by 20, 22 by 29, 30 by 45 and 35 by 49 in. An outstanding feature of this press is in the use of thin copper etched tubes which fit on a mandrel, or "form" cylinder. These



and since you're in Detroit . . .

why not check into Kemp Immersion Melting (with gas)? Go to the up-to-the-minute plant of the famous old Detroit Free Press and ask for Mr. George Cunningham. You have Mr. Cunningham's invitation to call and he assures us he'll be delighted to show you around. ☆ ☆ At the Free Press you'll find Kemp Immersion Melting (with gas) in stereo, remelt and job pots. You can study it under normal operating conditions. And you can ask questions. For one thing, you might ask Mr. Cunningham about that 40 percent fuel saving. ☆ ☆ Next thing, you'll want to get in touch with us . . . . The C. M. Kemp Manufacturing Company, 405 East Oliver Street. Baltimore. Md.

KEMP of BALTIMORE

copper tubes are about ⅜ of an inch thick, and when used in connection with the Ballard Process of electrolytically depositing a thin copper surface over that of the tube, they may be efficiently handled because of their light weight and the short time required to make them available for another etching. For each press run, an etched copper tube can be easily placed in proper position on the mandrel, or "form" cylinder, and just as readily removed.

This press is particularly suitable for pictorial gravure printing, at production speeds of from 4000 to 4500 impressions per hour, printing one color at a time. On long runs of three-color gravure printing, it is possible to operate three of these presses to complete the work—printing yellow on the first press, red on the second and blue on the third press. The printed sheets dry rapidly, and accurate register is assured. Each size of this press is equipped with an automatic pile feeder and an automatic pile delivery. The inkling apparatus consists of a removable ink-trough with a constantly circulating inking roller and an agitator. Both the inking roller and the doctor blade angle can be regulated by the pressman during the printing and while the press is running.

PLATE-MAKING FOR THE GRAVURE PROCESS

Fundamentally, the plate-making methods for the gravure process of printing are the same as for rotogravure printing. The special gravure screens used are just the reverse of the regular halftone screens employed in making relief halftone plates. The most-used gravure screen has 150 lines to the inch. For fine work, screens with 175 lines to the inch are used, and to a limited extent, a screen of 300 lines is utilized. The lines in a gravure screen are clear while the space between the lines is opaque. Eventually, in the etching process, this opaque detail of the screen will be represented by square cells, of varied depth, in the etched copper plate, or in the etched copper cylinder, to be used on a sheet-fed rotary gravure press. Grain screens are also used for gravure reproductions.

Practically any kind of copy that can be reproduced by other printing processes may also be used for gravure. In addition to photographic prints of any subject, this copy range includes: Pen-and-ink sketches, wash drawings, original paintings, prints of etchings and hand-colored photographic prints. The photographer makes continuous-tone negatives of the proper size and these negatives are carefully retouched to give the required contrasts. Positives are then made from the negatives, and the positives are carefully retouched for proper opaqueness and tone values. Dry plates are usually employed for negatives, and films for positives.

Positives of any kind of type forms, ranging from legends for illustrations to full pages of text matter and advertising display, can be made by taking press proofs in opaque black ink on sheets of water-clear gelatin, cellophane, or similar transparent material, then dusting the wet printing with green bronze powder or carbon lamp black. (The positives of type matter may also be secured photographically, when desired.)

The completed positives are made up into the required style of "form" by mounting them in predetermined positions on glass or transparent film. This is called to layout. The positives may be fastened to the glass or film with small pieces of adhesive tape. In the first place, the layout of the positives is used to obtain the image on a sheet of carbon tissue which consists of a special grade of paper coated with a gelatin mixture, and sensitized to light with bichromate of ammonia. The positive layout is printed on the carbon tissue by means of a vacuum printing frame and an arc light. After this has been done, the carbon tissue is exposed a second time to the light and through the special gravure screen. The carbon tissue is affected in proportion to the amount of light reaching its sensitized surface, viz: The greater amount of

Continued on page 100

Tin

How Much Do You Lose in Dross?

By STAFF WRITER

AN IMPORTANT and interesting tabulation of stereotype and line-composing machine dross analyses has been kept for a year's period by a newspaper mechanical superintendent. The tabulation does not show the amount of dross poundage shipped from the plant each month but it does show the percentage of each element in the dross as revealed by laboratory analysis.

The stereotype metal used in this plant is supposed to contain 6% tin. It will be noted that the *average* tin content of the dross in the above tabulation is 7.25%. For every pound of stereotype dross there was a loss of 1.25% tin in addition to the loss of tin from the original alloy. In the case of the line-composing metal which is supposed to contain 4% tin, the average tin content of that dross was 5.90%. For every pound of dross skimmed from the remelting pot there was a loss of 1.90% tin in addition to the loss of tin from the original alloy.

ANALYSES OF NEWSPAPER METAL DROSSES:

Stereotype Dross			
Date	*Tin*	*Antimony*	*Lead*
January, 1934	7.47%	13.25%	79.28%
February, 1934	7.81	13.55	78.64
March, 1934	6.57	12.53	80.90
April, 1934	7.65	12.89	79.46
May, 1934	7.66	13.42	78.92
June, 1934	6.90	12.92	80.18
July, 1934	6.90	12.04	81.05
August, 1934	6.97	10.81	82.22
September, 1934	7.03	13.20	79.77
October, 1934	7.30	13.08	79.62
November, 1934	7.08	12.87	80.05
December, 1934	7.64	12.71	79.65
Average	7.25%	12.77%	79.98%
Line-Composing Dross			
January, 1934	5.13%	12.16%	82.71%
February, 1934	5.66	11.22	83.12
March, 1934	6.42	11.65	81.93
April, 1934	6.84	12.07	81.09
May, 1934	5.10	10.81	84.09
June, 1934	4.42	9.90	85.68
July, 1934	6.91	12.49	80.50
August, 1934	6.87	13.05	80.08
September, 1934	5.40	10.51	81.09
October, 1934	6.12	11.95	81.93
November, 1934	6.61	12.79	80.50
December, 1934	5.33	11.86	82.71
Average	5.90%	11.75%	82.12%

In the newspaper plant in which the tabulation was kept it has been the recommendation of the mechanical superintendent that all stereotype dross should be replaced, pound for pound, with replacement metal of 8% tin content and that all line-composing machine metal should be replaced, pound for pound, with replacement metal of 6% tin content.

This recommendation is borne out by a study of these figures.

Metal manufacturers are always glad to cooperate with users of printing metals in helping them keep tin and antimony content of dross down to a minimum, but the actual work of skimming metal properly before placing dross in the drum, of course, must be done in the user's plant. Proper instructions should be given the person doing the remelting. Occasional supervisory visits will be helpful. In many plants, when instructions have been issued it is felt that the metal question is "settled." This is not the case, however, in many instances.

THE WEATHER
Rain Tuesday and Wednesday; somewhat warmer on Tuesday.

The Detroit Free Press

STATE EDITION

Tuesday, May 7, 1935. 105th Year. No. 3 — On Guard for Over a Century — 24 Pages — Three Cents

Philippine Rebels Are Threatening Attack on Manila

Island Garrison Rushes to Arms

Woman Admits She Was Leader of a Mob in Attack

Insurrectionists Strip U. S. Sailors of Guns

MANILA, May 7—(A. P.)—(Tuesday)—Sakdalista forces demanding immediate independence from the United States were reported mobilizing early today within 30 miles of Manila for further attacks in the uprising which took 50 lives last week near this city.

Policemen with rifles walked Manila streets although Acting Gov. General Joseph R. Hayden asserted that there was no danger of further disorders.

The Philippine constabulary ordered three platoons dispatched to Manila from provinces unaffected by the insurrection of extremists, ready to be rushed to any trouble zone.

In the nearby Tayabas Province the constabulary patrol was reinforced despite the statement of Col. Guillermo Francisco, acting chief of constabulary, that danger of another outbreak is remote.

Woman Admits Leading Mob

Saud Alcabre, woman "general" arrested at a hearing at Cabuyao that she participated in the night attack on the town hall at Cabuyao, May 2 in which the constabulary repulsed the Sakdalistas, killing 52.

She confessed that she aided in rounding up several American sailors and taking firearms from them for use against the constabulary.

The woman leader accused two Filipino legislators, Representatives Aurelio Almazan and Mariano Untalan, of fomenting the revolt against acceptance of the Commonwealth Government Constitution in an election set for May 14. She said they urged the Sakdals to fight for immediate independence from American Government. Gov. Hayden ordered an investigation of the accusations against the legislators.

Attempting to smash the revolt the Government has arrested 250 persons and charged them with sedition.

Chief of Sakdalistas, in Tokio, Expresses Fear for His Life

TOKIO, May 6.—(A. P.)—Benigno Ramos, leader of the Sakdalista faction in the Philippines insurrection movement, told the Associated Press today that enemies sought his life and "this may be the last opportunity to meet you.

"If I am killed the Sakdalista revolution will not die but will only become more vigorous," Ramos declared. "As a student of American history I believe in the virtues of revolution.

"He said the leaders of the American Revolution, who were hunted and proscribed like I am today.

Ramos said he might return to the islands to resume command of the fight against the United States regime and the Commonwealth Government.

"They can't catch me because they won't see me," he said confidently, in contrast to his expressed belief that he might be killed.

Ramos said the uprising was planned to dramatize the plebiscite to be held May 14.

Death Waits Winner and Also the Loser

JOLIET, Ill., May 6.—Death looms as the only certain waiting in a criminal game of chance attempted for Thursday in the state Penitentiary. On that day John Hauff of Chicago and Fred Getner and Arthur Thielen, of Rockford will toss coins to determine the one in which they will go to the death chair.

All three are awaiting electrocution for the murder of Charles Sand, cashier of the Leonore State Bank, in a robbery.

Man-Woman-Romance Expert to Speak Today

Dr. Frank D. Stutz, Dayton educator and psychologist will speak at Wayne University Tuesday on the first of four lectures on "Man, Woman and Romance." The lectures, to be completed this week, include "Ethics of Dating," "Choosing Your Mate," "Adjustments in Marriage," and "Criteria for Successful Marriage."

House Approves Ban on Alimony

Adverse Vote of Last Week Is O...

G.M. Declares Its Production Must Continue

Acts as Government Speeds Peace Vote at Toledo

Shut Plant Is Opened; Muncie Made Ready

Senator Killed with 3 Others in Plane Crash

Cutting Was on Way to Washington for Bonus Debate

Nine Injured Include Hollywood Film Folk

Gen. Johnson Calls on Roosevelt to Repudiate Coughlin and Other 'Bogey-Men' Imperiling Recovery

British Monarch Honored in America

He Blames Them for 'Silly Jitters'

Start the Day Right with the Free Press

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NRA

THE WEATHER:
Showers probable tonight and Tuesday; warmer Tuesday.

The Detroit News

THE HOME NEWSPAPER

MONDAY, MAY 6, 1935, 62nd Year, No. 257 — 30 Pages

SENATOR, 3 DIE IN AIR

U. S. To Poll Toledo Auto Pla

Senator Killed | SECRET BALLOT | KING CHEERED | *She Does Her Bit for King and Empi*

PEEK ATTACKS U.S. PURCHASES OF GOLD, SILVER

Roosevelt's Trade Adviser Says Policy Puts U. S. in Red on Foreign Trade.

Washington Believes Blast Was Aimed at Tariff Views of Hull.

By JAY G. HAYDEN.
From the Washington Bureau of THE DETROIT NEWS.

WASHINGTON, May 6.—Another large question mark as to the wisdom of the Roosevelt policy of buying gold and silver was supplied from within the Administration's own circle today when George N. Peek, the President's special foreign trade adviser, adduced figures to show that instead of having a favorable trade balance the United States was nearly a billion dollars "in the red" in 1934.

Further Peek attempted to prove that if bad debts, including more than ten billions of war loans to foreign governments now in default, were written off the books, the United States was very close to being a "debtor," rather than a "creditor" nation.

The only moral which Peek draws in the report is that it indicates the necessity for "a review of all national policies based in whole or in part on our international creditor status." He recommends "the inauguration of a detailed study of our direct investments abroad and of foreigners' direct investments in the United States to supplement the studies now in progress of capital movements."

GUNNING FOR HULL.

The man Peek is particularly gunning for, it is indicated, is Cordell Hull, Secretary of State, who for two years has been assailing the American high tariff policy as inconsistent with our status as the great creditor nation of the world. Peek, in contrast, is essentially a Republican protectionist and his chief aim in life is to prove that Hull is wrong in his adherence to the traditional Democratic approach to the foreign trade problem.

Peek's attack on the Government's gold and silver purchasing, as it appears, is only incidental to his effort to support his foreign trade theory, but it is on this account no less significant as questioning the wisdom of the currency hocus pocus in which the Administration has indulged.

What he asserts, in simple terms, is that the $1,351,000,000 worth of gold and silver purchased during the year were in fact commodities and if these were added to the other foreign goods bought they turned an otherwise favorable trade balance of $381,000,000 into an unfavorable balance of $970,000,000.

INVESTED HERE.

A large part of the benefit which the United States might have derived from this gold and silver buying, he shows, was nullified by the fact that the foreigners invested money derived from this source in American stocks and bonds, rather than spending it for American goods.

These tabulations by Peek are likely to prove important from two angles. First they would seem to hasten the day, already long delayed, when President Roosevelt must face the fundamental conflict of policy as between Peek and Hull, and eliminate either one or

SENATOR BRO... TING (Rep.), Ne... the leading libera... was killed today... crash near A...

RUM PA... AT HIG...

Total for April That for Prec... Records

By CARL B...

LANSING, Mich... Liquor Control Co... last month reache... level.

Records in the... office show that... plowed in April to... This was $6,000,... March payroll wh... previous record, a... from the December... the Democratic co... mission.

John S. McDon... the commission, w... the increase, decl... were false.

"These figures... your payrolls in th...

A news stor... Hoover's speech... is on page 9.

office," he was to... month they show... has increased aga... number of your em... ed downward. Is th... you want to make...

10 TIMES THE W...

"We have been... staff, but we hav... tions for license c... Id said. "We ha... work now that w... investigate all ap... which is something... tion didn't do unt... card (former chai... o... employes of th... here two weeks fro...

State treasurer... that an average... received checks du... roll period, last m...

Imperial

has served these newspapers for years

THESE two progressive Detroit Newspapers have been using Imperial Type Metal for many years — The Detroit News for 18 years and the Detroit Free Press for 13.

In view of their long record with Imperial, the mechanical executives in either of these plants are in a position to tell you of the advantages of Imperial Metal and Service. May we suggest that if you visit either of these plants that you ask them about their experiences with Imperial? Get their story "first-hand."

They will tell you that Imperial gives cleaner, better looking impressions, minimizes machine and metal trouble, and in the long run gives the lowest type metal costs.

THE IMPERIAL TYPE METAL CO.

PHILADELPHIA • LOS ANGELES • NEW YORK • CHICAGO

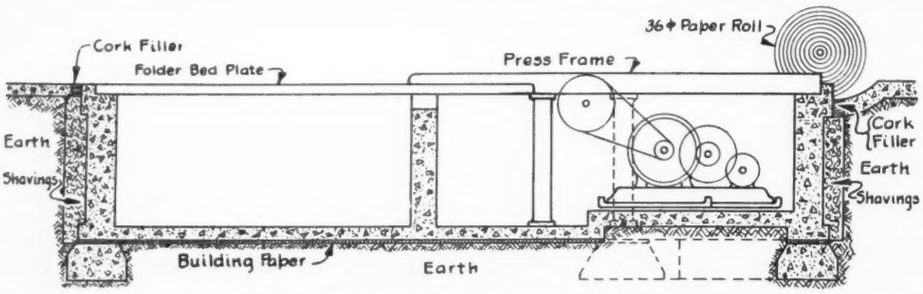


Diagram of earthquake-proof printing press foundation designed by Carl M. Bigsby, general manager of the Compton (Calif.) Printing Company. As will be seen in the drawing, the press foundation proper rests upon a substructure between which two sections is placed a layer of 15-lb. tar felt. The cement foundation is reinforced with ½-in. square steel bars. Between the vertical portion of the foundation on all four sides and the earth a 6-in. filler of asphalt-dipped shavings is designed to cradle the press and foundation against any lateral forces exerted by the earth. A 2-in. cork filler or spreader extending downwardly to a depth of 4 in. is placed between the edge of the floor and the rim of the foundation immediately next to the press frame and the folder bed plate.

The aperture filled in with shavings was originally filled with sand and the joint between the floor and cement press foundation where cork is indicated was filled with felt. However, after considerable experimentation we believe the asphalt-covered shaving and the cork to be more suitable for the purpose.

As a factor in making the press and foundation one unit, the bed plate of the press was embedded in the top of the press foundation and steel reinforcements were used to tie the concrete structure rigidly to the press.

Shock-Proof

Foundation for Sextuple Newspaper Printing Press

By C. M. BIGSBY*

WHEN printing equipment was installed in the present building occupied by the Compton Printing Company, the effects of earthquake shocks with respect to that equipment was kept in mind. A wide observation of the results of lateral ground forces in motion led me to several conclusions relative to making structures earthquake proof. One of the precautions we took to avoid possible demolition of equipment was to design a special foundation for our sextuple printing press.

As will be seen in the accompanying diagram of the press, the "boat" or box-like foundation which immediately supports the press and forms the so-called pit, is entirely free from the ground and is so designed that it will not be disturbed by any lateral motion of the earth. The principle involved is that of forming a line of cleavage along which the inertia of motion of the earth in an earthquake is not transmitted to the mass of the press and foundation which is in inertia of rest.

The sub-structure of the press, as shown in the diagram, was laid down one day and the top smoothed off to a high finish and a close approximation of a completely plane surface. This was allowed to set before the main press foundation was poured. Before pouring the press foundation, a layer of building paper was laid on top of the sub-structure. Thus a shearing point is provided at which the motion of the earth fails to be transmitted to the press and foundation proper. In addition to the press foundation not being rigidly anchored to the earth, the floor is designed so as not to come in direct contact with the press foundation, and likewise, the walls of the foundation do not touch the solid earth around them. To accomplish this the space between the press foundation and the adjoining earth was filled in with loose shavings covered with an asphalt composition which would prevent rot. Then the opening between the press foundation and the floor was filled in with cork.

*Business Manager, Compton Printing Company, Compton, Calif.

Vibration Isolator

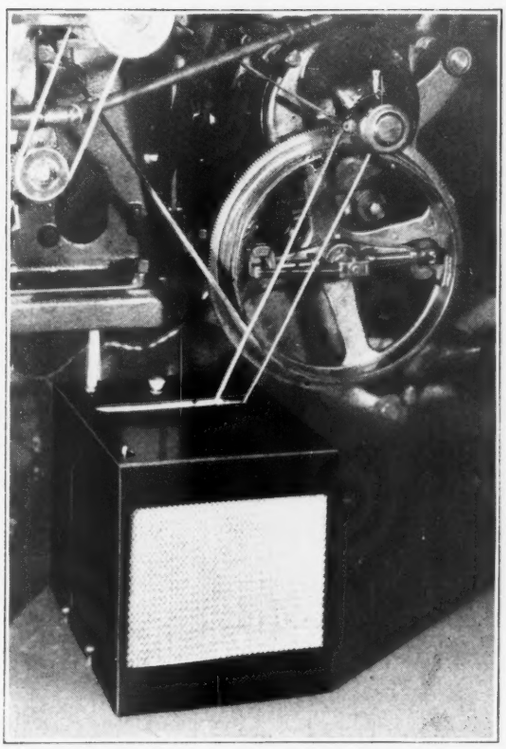
An individual vibration eliminating unit, or shock absorber, for isolating vibration in printing machinery has been announced by The Vibration Eliminator Company. The new device consists chiefly of a base stamping and supporting housing to which the leg or base of the machine may be fastened rigidly. It relies for its efficiency principally upon a new table of selected loadings of natural cork. The vibration eliminating units are designed to be applied between each leg or supporting point of the machine base and floor in sufficient quantity according to the vibration isolation characteristics of the machine which is to be isolated. The machine is bolted to the eliminator and the eliminator is bolted to the floor.

It is claimed the natural cork isolating material will maintain its efficiency during the entire life of any machine and is not affected by water, oils or temperature changes. It is also claimed that the Vibration Eliminator does not take a permanent set under excessive loading, will not further compress after the initial compression and has a time lag in its return after compression which prevents any bouncing action.

The Vibration Eliminators are furnished in several sizes. The No. 24 size may be supplied for any load between 175 lbs. and 375 lbs. each. Six of these will isolate as much as 2250 lbs.

Further information may be obtained by addressing The Vibration Eliminator Company in care of *Printing* EQUIPMENT *Engineer.*

THE MONOAQUA COOLER *for* LINOTYPES AND MONOTYPES



SAVES ON EACH MACHINE—30 gallons, or more, of water per *hour*.

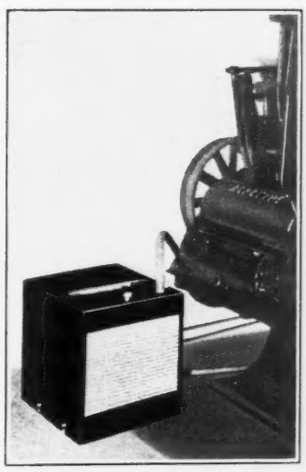
MORE PRODUCTION—Because the molds are kept the same temperature as the room.

LIMING OF WATER JACKETS—Reduces the efficiency of the cooling system when city water is used.

CONVENIENCE—Machines can be placed where water and drain pipes are not available.

The Monoaqua Cooler can be installed on any Linotype or Monotype machine in ten minutes. It is constructed to be free of attention, having self-lubricating bearings, two high-grade honeycomb radiators, stainless steel and bronze pump, and balanced fan. The Monoaqua Cooler is constructed to give years of service and not a cent has been spent by users for repairs in four years. Send for further information.

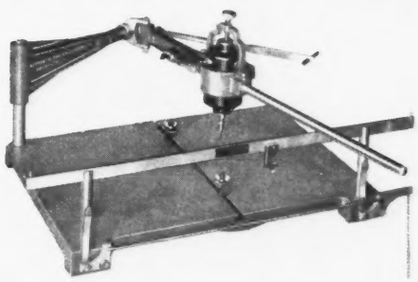
Price, Complete, $55.00



NEW DIXON HEAVY DUTY ROUTER

Routs

Stereotype Casts
Zinc
Electrotypes
Copper
Linotype Slugs
Wood
Rubber
Linoleum



COMPLETE

$95.00

Fast
Accurate
Safe
Simple and Dependable

SPECIFICATIONS

Motor — Ball bearing, 20,000 r.p.m., fan-cooled, heavy duty, raises and lowers inside arm, by hand wheel.

Foot Stirrup — (not illustrated) Makes it possible to raise and lower the arms by foot action.

Light Fixture — Light located at side of motor.

Switch — Located on side of motor.

Arms — Heavy reinforced cast iron.

Bed — Size 24½" x 18" machined surface.

Workholder — Locks any size or shape cut. Complete with router bits, light bulb, plug and cord.

● Large or small newspapers and printing plants should have this router and type-high planer. Its production and operation is the same as the larger machines and is constructed to give years of service. It will pay for itself in a short time and improve production. Send for further information and payment plan.

AUTOMATIC SAW SHARPENING COMPANY

Sharpeners of Printers' and Stereotypers' Saws **733-41 E. Ohio St., Indianapolis, Ind.**

Buy the Proper Inks

Suitable For the Job to Be Printed

By W. W. HITCHNER*

IT IS very important that the ink maker be given as much information as possible about the job to be printed. He should be given the sequence of colors, the type of press, the degree of permanency required, and whether it has to withstand the action of paste, alkali, butter, cheese, etc. The printer who is loath to give the ink maker all information or who feels that he should divide the conditions by sheer guess work cannot expect to get the service from the ink maker that will be given when the latter is fully informed, no matter how willing he may be to render aid.

CHARACTERISTICS OF COLOR

Almost every color has its own characteristics and they are classified as follows: Permanent, alcohol-proof, water-proof, acid-proof and alkali-proof.

LACK OF PERMANENCY

When speaking of permanency, it should be borne in mind that permanency is only a relative term. Nothing under the sun is absolutely permanent. Relatively speaking, however, there are inks which are permanent.

When an ink is found not to be permanent, nothing can be done to that particular ink to increase the quality of permanency, for the reason that every ink is composed of certain ingredients and certain varnishes. Some of these ingredients have inherent in them the quality of permanency, while others are "fugitive" or not permanent. Nothing can be put into an ink, once it is made, to either increase or decrease the permanent quality that may be possessed by any of its ingredients. There are, however, a number of pigments which lie in between the two extreme points of fugitiveness and permanency. If a certain pigment is fugitive, the ink into which it goes will be fugitive and it becomes necessary to compound an entirely different ink in which a new pigment is used that in itself is more permanent.

ALCOHOL-PROOF

When a printed job is to be varnished after inks are dry, the ink-maker should be so advised when the ink order is given, so that he can make these inks of such material and pigment as to be alcohol-proof.

INK "BLEEDING" OR WATER-PROOF

A good poster ink will not bleed when exposed to atmospheric conditions, such as ran or snow. It often happens that posters can be detected on bill boards which "bleed" very badly and when this is the case nothing really can be done to the ink as bleeding is characteristic of a pigment. In order to prevent an ink from "bleeding," a pigment must be selected which is water-insoluble. Poster inks must also be permanent.

ACID-PROOF LABELS

Printed labels of all kinds are usually applied by pasting and it is absolutely necessary that the colors used for printing such work will withstand the action of acids, as the paste which is employed to apply labels, in most cases, contains acid and this acid very readily works upon some of the colors, particularly reds, and causes them to "bleed." In order to overcome this trouble, it is necessary to employ color or pigments for label work which will not be affected when brought into contact with acids.

All inks for soap wrapper purposes must be alkali-proof, that is, they must not change color under the action of alkali soaps, nor should the color be drawn through a paper wrapper into a soap by the effect of the acids of the soap.

There are pigments which are proof against both these requirements, and there are other pigments which are proof against only one of the requirements named, that is, proof against the alkali but not against the action of fatty acids in the soap. The number of pigments which meet both requirements are comparatively small.

The soap manufacturers generally have met the view of the ink-makers by using an inside wrapper for their soaps. When this inside wrapper is used, the fatty acids will not have any effect upon the alkali-proof but non-fatty acid-proof pigments, and in this way a much larger variety of colors and tones of colors can be used.

To determine if an ink is alkali-proof make an actual test by mixing a strong alkali solution, such as caustic soda. Take a few drops of such a solution and put them on the proof, then apply fresh water and you will readily see whether the color is affected by the alkali solution or not.

INK FOR BUTTER AND SILVERWARE

On paper used for wrapping butter, the nk must be of such a nature as not to be attacked by brine or discolor butter.

On paper used for wrapping silverware the ink and also the paper must contain no ingredients which would tarnish the silverware.

*Superintendent of Pressroom Production, The Robt. O. Law Company, Chicago, Ill.

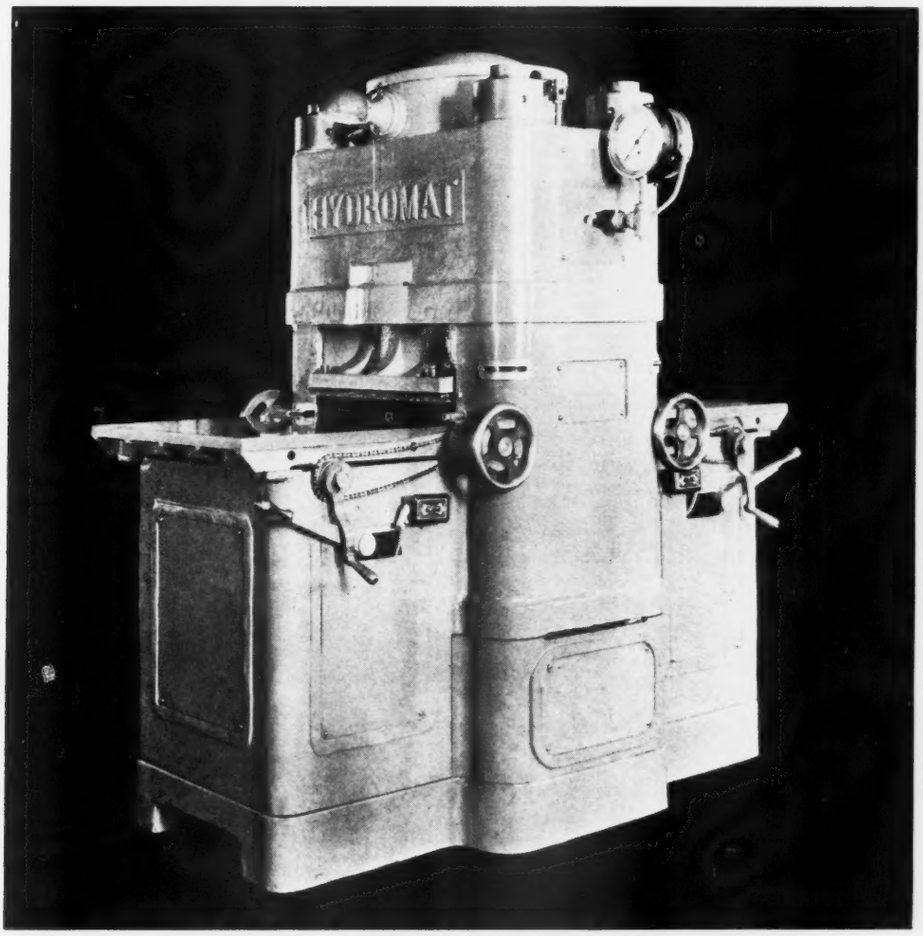
Linotype New Orleans Manager

Many printers, publishers and others in the territory served by the New Orleans Agency of the Mergenthaler Linotype Company will be pleased to learn that John L. Davis has been appointed manager of that agency to succeed the late Fred W. Bott.

Mr. Davis, who for the last two years was assistant manager of the agency, was chosen for that important position by Mr. Bott himself. He is a native of South Carolina, and is a practical printer and operator of many years' experience. He was at one time foreman and then mechanical superintendent of the Columbia (S. C.) *Record*. During the World War he served as state director in South Carolina for the United States Employment Service, and following the war filled executive positions in the field of vocational education for the government.

This is John L. Davis recently appointed manager of the Mergenthaler Linotype Company's New Orleans Agency.

He joined the Linotype organiaztion ten years ago, and has represented the company in Alabama, Georgia, South Carolina and Tennessee. In 1933 he was made assistant manager of the New Orleans Agency, the position he continued to fill until his latest promotion.



STEREOTYPERS

While Attending The Conference
See This **HYDROMAT** Working At The
MICHIGAN ELECTROTYPE COMPANY

Every Stereotype Superintendent attending the Conference should by all manner of means see a demonstration of this Hydromat Machine at the Michigan Electrotype Company.

Those of you who do not attend the Conference can arrange for a demonstration of this machine in New York, Cleveland, Chicago, Minneapolis and San Francisco. Write and tell us where you want to see the machine at work and we will arrange for a demonstration.

ELECTRO HYDRAULIC MACHINERY COMPANY
1025 SWEITZER AVENUE **AKRON, OHIO**

Service

Given by ANPA Mechanical Department Pays Big Dividends

By STAFF WRITER

APPRECIATION of its activities and the services rendered by the A. N. P. A. Mechanical Department to member newspapers during its nine years' existence is expressed in the annual report of the Mechanical Committee to the parent publisher organization which met in New York during the week of April 22.

The Mechanical Committee is composed of the following members: S. H. Kauffmann, Chairman; W. L. Fanning, Vice-Chairman; A. H. Burns, John E. Martin, Walter Ogden, F. C. Palmer, John W. Park, Charles Reber, Frank Smith, W. W. Warfel and E. R. Whitrod.

The more important activities of the department are as follows:

The bulletins which it has issued are the chief source—almost the only source—of technical information on newspaper printing now available.

Its annual mechanical conferences, the ninth of which will be held this year, have given the newspaper mechanical men the only opportunity they have ever had of assembling for discussion of their common problems.

Its four-year study of newsprint and news ink in collaboration with the Government Printing Office laboratory has given publishers and pressmen their only reliable, scientific information on these two basic materials.

Its contacts with sister organizations have been of inestimable benefit to publishers. The outstanding example is the Joint Committee on Newspaper Printing, representing the A. N. P. A. and A. A. A. A., which has done so much to improve the printing of agency advertising.

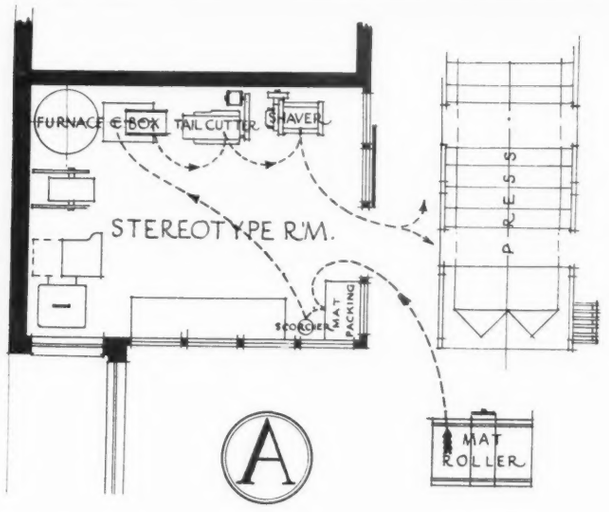
The savings of publishers resulting from its campaign to reduce the costly item of newsprint waste and to improve the methods of transporting and handling roll paper have aggregated many times the entire cost of operating the Department.

Although those responsible for the Department's activities may feel a pardonable pride in this list, they keenly realize that a much longer list of unsolved problems could easily be prepared. The answers to many of these problems can be found only by patient investigation and experiment, which cannot be attempted on the Department's present limited budget. The expenditure in any year has been only an insignificant fraction of newspaper revenue or operating costs. Many comparisons might be made, but one on the basis of newsprint will suffice. The Department's annual expenditure has never equalled even one cent per ton of newsprint consumed.

The Mechanical Department operated again during the past year under its reduced budget and, in the opinion of this Committee, continued to render service and information to member offices on their mechanical problems which exceeded many times over the moderate cost of operating this Department.

FitzPatrick to New Quarters

It has been found necessary to remove the plant and offices of the FitzPatrick Felt Mfg. Co. to new and larger quarters at 1971 East 79th St., Cleveland, Ohio.



Sense

Must Be Used In Laying Out Plant For Efficient Operation

By ROBERT W. DICKERSON*

WE HAD occasion, some time ago, to discuss newspaper plant problems with a publisher whose dream of a new home for his paper was nearing relization. We talked of production and methods of operation and had no difficulty in agreeing that straight-line operation is essential if the ultimate in speed and economy is to be achieved.

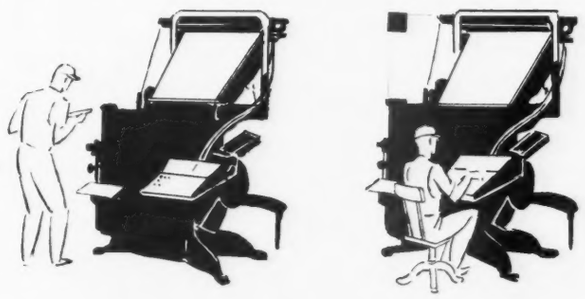
"But," said he, "very few, if any, publishers are willing to go all the way and make their plants real examples of 100% straight-line operation." He then proceeded to outline his concept of a 100% straight-line plant, as it would be exemplified in his own which was in the early stages of construction.

His location was a downtown corner in a city of nearly 250,000. Such a site, of course, meant a multi-story building. We do not recall many of the details of the plan, not even the number of stories that he had determined upon as providing the space which he required. We do remember, however, with what enthusiasm he told us that beginning at the top of the building, operations would follow gravity and deliver the finished papers at the street level. His business and advertising offices, in fact all public contact, were to be on the top floor. Next floor below was devoted to the news room, editorial department and accessory operations. Then came the composing room, stereotype department, press room, reel room, mailing room and paper storage in about the order named. The paper storage, as we recall it, was to be in the basement.

Enthusiasm is a quality all too rare in this old world, and we dislike to say or do anything to dampen or dull

*Architect, Cleveland, Ohio.

A PROBLEM *IN ARITHMETIC*

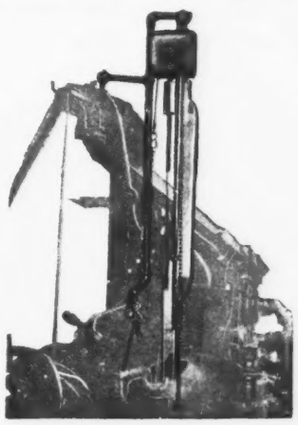


The machine shown above has no Margach Metal Feeder. The operator is compelled to watch the metal pot continually. Defective feeding usually means he has down time due to machine trouble in which the machine must be repaired. Not only this — productive time is lost in the pressroom because of defective slugs. This down time can approximate one hour per day, or $3.00 a day charges against the composing machine. In a five-day week, at the rate of one hour per day it would be a $15.00 maximum loss.

The machine in this illustration has a Margach Metal Feeder. The operator does not have to feed the metal pot. He has no down time which might be caused if he did not have his machine equipped with a metal feeder. As a result there is a minimum saving of his charges against this feeder-equipped machine amounting to at least $3.00 per week.

The MARGACH *Solution*

MARGACH SOLUTION. In view of the above, you can readily see that it would pay any plant to install a Margach Feeder because at least $3.00 per week can be saved which pays for the feeder in a very short time. In many composing rooms the savings will accumulate more rapidly. The fact that most large composing rooms have Margach Feeders is ample proof of their economy. However, these feeders can show proportionate savings for the medium and small size plant. Margach Feeders are used on Linotypes, Intertypes, Monotypes, Ludlows, and Elrods. They lower the metal bar into the pot just as fast as the melted metal is being used. There are over 14,000 Margach Metal Feeders in use today. They save time and money and make profits for their owners. Guaranteed for 10 years. Price, $75.00 each.



SURE GRIP WORKHOLDERS *and*
RAPID SAW SWIVEL GAUGES
for MILLER SAWS.

LINO-SLUG ROUTERS.

MARGACH
MANUFACTURING COMPANY
INCORPORATED
213 CENTRE ST. • NEW YORK, N. Y.
Herman Diamond, President

MARGACH METAL FEEDERS

See Our Exhibit at Booth Number Seven

it, but we could not repress the urge to ask him if he had counted the cost of realizing this ideal. Whether he appreciated that it was the thoughts, ideas, wishes and information of the public that he needed at the starting line of his operations rather than the human carcasses by which they were conveyed, and if so, whether they could not much less expensively be transported by pneumatic tube, telephone, telautograph, dispatch conveyor or similar means rather than in their human containers via elevator.

> Straight-line operation recognizes the old axiom, "A straight line is the shortest distance between two points." Theoretically, and practically if you please, there is no economy of time or effort in routing a manufacturing process in any other than the most direct course. In actual practice, however, limitations of space impose many adjustments, and the interrelation of the departments and processes of manufacture themselves necessitate many compromises. This means that without a well-definied sense of relative values, rigid adherence to a straight line in one part of the work may force a costly detour in another. The nature of the work and materials involved at a given point in the operation must be considered, by no means forgetting its time relation to the whole operation.

He said he had considered all of these things, as well as the cost and engineering difficulties of supporting his presses and reels on upper stories rather than on earth bearing foundations. He knew that it would cost more to lift his newsprint to the reel floor level by elevator than to feed it up to his mailing room through the presses. He was easily convinced that it was less convenient for the public to travel to the top of his building than to be served at the street level. In fact, he confessed to having thoroughly analyzed the whole problem, but having "hitched his wagon to the star" of 100% straight-line operation, he was not one to be swerved from his lofty purpose. He was willing and ready to pay whatever cost in construction and operation was necessary to the realization of his ideal.

Idealism is something else of which the world has need, but it is our observation that the publisher who can pursue an ideal in newspaper production with haughty disdain for cost is the exception rather than the rule. There must be a practical relation between the ideal and the results that come from following it. Straight-line operation is not a fanciful ideal. Its practical virtues are too universally demonstrated in every industry to require defense. Our only thought in reciting this incident is to support our contention that a sense of relative values must be maintained in planning any industrial operation.

Even in a newspaper plant some work, is not by comparison, under time pressure; is not closely geared to the main operation. The handling and delivery of

Continued on page 86

CECIL RUBBER ROLLER FINISHING MACHINES FAST BECOMING THE *STANDARD EQUIPMENT In Printing Plants of America*

CECIL equipment has taken the uncertain results . . . cost of experimentation . . . inconvenience . . . worry and lost time *out* of rubber roller refinishing.

ECONOMY

There is real economy in providing the *proper* machine for adequately protecting and refinishing your rollers.

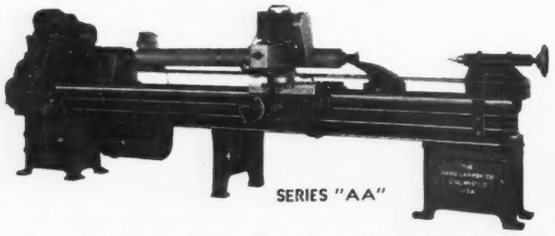
LIST OF USERS
Minneapolis Tribune
Kansas City Star
Kansas City Journal-Post
Washington Times
Washington Evening Star
Roanoke Times
Altoona Mirror
Cincinnati Times-Star
Godfrey Roller Company
Sydney Australia Morning Herald
San Francisco News
McCall Company, Dayton, Ohio
Toronto Canada Star

The Metal Cutter Takes "the Grind" Out of Roller Grinding—"*It Cuts*"

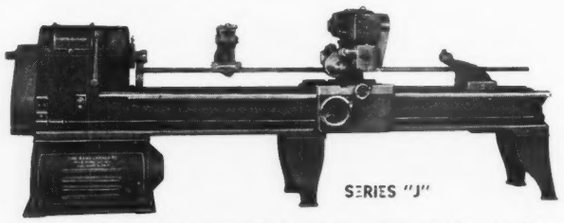
It is highly efficient . . . accurate . . . dust-less . . . and economical. Inexperienced employees can operate.

INVESTMENT

Compare your present costs . . . and the finished job you are getting on your rollers with what Cecil Equipment will do for you. Do it today . . . you will be surprised to learn of savings and satisfying results that can be accomplished within your plant.



HEAVY DUTY, motor driven oil incased, all geared head Rahn-Larmon lathe, complete with all Cecil Equipment. Other lathe models with any length of bed—to suit your conditions.



Specially designed, HEAVY DUTY Cecil Rubber Roller Finishing Machine incorporating all Cecil Equipment. Motor driven, geared head, ball-bearing, Rahn-Larmon built.

Accuracy . . . ease of operation . . . speed . . . cleanliness . . . economy of operation and the most modern equipment should be considered in the selection of your rubber roller refinishing equipment.

Materials, workmanship and results positively guaranteed.

Represented by The Goss Printing Press Co.

DUST-LESS EQUIPMENT CO.
1406 MONROE ST., N. E. WASHINGTON, D. C.
Write for Prices and Full Information

Matrix Tooth List and Lug Chart

SOMETIMES the machinist or operator has difficulty in locating a particular matrix channel in the main magazine of a line-casting machine. This happens when a certain matrix binds in the channel, due to a bent condition of the matrix, and the matrix hook most used to withdraw it backwardly from the channel.

In other instances, the matrix tooth and lug chart printed below will assist in locating any verge pawl, escapement or spring which might need attention.

The magazine is divided into five sections, and each section contains eighteen channels. Facing the magazine entrance, the sections are numbered from 1 to 5, commencing at the right.

In using the chart to locate a given character, the hyphen for instance, it will be found (while facing the magazine entrance) that it is the seventh channel counting towards the left from the first channel in the third section.

FIRST SECTION

Character	Channel	Tooth No.	Lugs
1st e channel	0	2	.040
e	1	12	.040
t	2	3	.040
a	3	13	.050
o	4	23	.040
i	5	123	.030
n	6	4	.050
s	7	14	.040
h	8	24	.050
r	9	124	.040
d	10	34	.050
l	11	134	.030
u	12	234	.060
c	13	1234	.050
m	14	5	.080
f	15	15	.040
w	16	25	.080
y	17	125	.050
p	18	35	.050

SECOND SECTION

v	19	135	.050
b	20	235	.050
g	21	1235	.050
k	22	45	.060
q	23	145	.050
j	24	245	.030
x	25	1245	.060
z	26	345	.040
fi	27	1345	.050
fl	28	2345	.050
ff	29	12345	.060
ffi	30	6	.080
ffl	31	16	.080
em quad	32	26	.080
comma	33	126	.030
period	34	36	.030
colon	35	136	.040
semi-colon	36	236	.040

THIRD SECTION

?	37	1236	.050
en quad	38	46	.046
(	39	146	.030
|	40	246	.030
opening quote	41	1246	.030
!	42	346	.040
hyphen	43	1346	.030
thin space	44	2346	.050
)	45	12346	.030
en leader	46	56	.046
closing quote	47	156	.030
*	48	256	.046
1	49	1256	.046
2	50	356	.046
3	51	1356	.046
4	52	2356	.046
5	53	12356	.046
6	54	456	.046

FOURTH SECTION

7	55	1456	.046
8	56	2456	.046
9	57	12456	.046
0	58	3456	.046
$	59	13456	.046
em leader	60	23456	.080
E	61	123456	.080
T	62	7	.070
A	63	17	.080
O	64	27	.070
I	65	127	.050
N	66	37	.080
S	67	137	.060
H	68	237	.090
R	69	1237	.080
D	70	47	.080
L	71	147	.070
U	72	247	.080

FIFTH SECTION

C	73	1247	.060
M	74	347	.090
F	75	1347	.070
W	76	2347	.090
Y	77	12347	.080
P	78	57	.070
V	79	157	.080
B	80	257	.070
G	81	1257	.070
K	82	357	.080
Q	83	1357	.070
J	84	2357	.050
X	85	12357	.080
Z	86	457	.060
œ or @	87	1457	.080
æ or fb	88	2457	.080
&	89	12457	.050
—	90	3457	.080
pi channel	91	1234567	.090

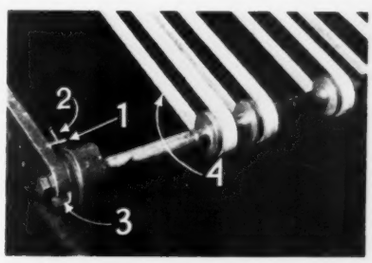
Proof Press Delivery Tapes

In the composing room of the Cleveland *Press*, the power page proof press sheet delivery has been fitted with endless linen tapes as a substitute for the rubber tapes formerly used on the press. A means for maintaining all of these fabric tapes in a taut condition has been applied. If, through use or humidity, the tapes should loosen, it is an easy matter to adjust the tape roller bar to compensate for stretch.

In the accompanying illustration which shows a section of the press delivery rack, a slot was cut in each arm as at *3*. The slots support the roller bar by means of cap screws which are loosened and tightened again after adjustment. The slots *3* permit moving the roller bar a sufficient distance to take up any slack in the tapes *4*.

The means of adjustment, as explained by Al Krueger, chief composing room machinist, were provided by fastening a small steel angle bracket, *1*, at the inside of each delivery rack arm. An 8-32 adjusting screw, *2*, and nut regulate the position of the roller bar at either side.

The tapes were secured from a Cleveland supply company.



The fabric delivery tapes do not stretch readily with changes in atmosphere.

Stroboscope and Its Usefulness

In Relation to Printing Machinery Described—Principles of Operation

By MILTON E. HANSON*

MAN in his modern quest for infinitive divisibility, in attacking the second as a measure of time, has developed the stroboscope. The inventor got his inspiration from the same source as that of the inventor of the motion picture. It all originated in the study of the physical nature of the sight nerves in the human eye.

The adaptation of the Stroboscope to aid the human eye in making visible rapidly whirling printing machinery parts came about as a result of a demand where-

The Unaccommodating Human Eye

As is explained in this article, experiments show that no matter how quickly a thing happens, like the flash of a blinking light for instance, it seems to the eye to last one-fifteenth of a second and to many people even a fifth of a second. Try this for yourself by taking the back off your kodak, hold it close to the eye and observe a bright light through the lens. Set the shutter speed at 25 (meaning time of opening is one twenty-fifth of a second) and click the shutter several times. Then set the speed at 100 (one-hundredth of a second) and click the shutter several times. You will not be able to distinguish any difference in the duration of the flash of light you see, and the latter will appear more dim than the first, and the time of illumination you will estimate to be probably near one-tenth part of a second in each case.

by the condition of those parts could be observed while in actual and normal operation.

ITS USES TO THE PRINTER

Printing machinery has now become so complicated that any press manufacturer will find the Stroboscope most useful for research, test, adjustment and trouble-shooting purposes. The magazine, newspaper or large commercial printer of any class has a considerable task imposed to keep equipment in propert adjustment and will find this instrument a great aid in expediting such work. Similarly, it is claimed the Stroboscope will be of use in observing the register of color on a web of paper as it is being printed.

Those of us who think we see everything as soon as it takes place may be surprised to learn that we do not. The most alert eye can under best conditions detect a happening possibly as soon as one-fifteenth part of a second later. Many eyes require a much longer time, even as much as a fifth part of a second.

HUMAN SIGHT TO BE ACCOMMODATED

No matter how quickly a thing happens, like the flash of a blinking light, for instance, experiments show that it seems to the eye to last one-fifteenth of a second. To many people it seems to last even a fifth of a second.

*Mechanical and Chemical Engineer, Collingswood, New Jersey.

As an illustration: When we were kids we used to light the end of sticks in bonfires after dark and wave them around. If we waved them back and forth slowly the hot coal on the end remained merely a spark of light in motion. If we waved it more rapidly it lost its individuality in a fading streak of light trailing the hot coal. This streak is the image of the traveling spark of light taking time to fade out on the different nerves on the retina surface of the eye. If the stick was waved even faster the image of the hot coal was about lost entirely and we seemed to see a perfect streak of light of the color and intensity of the hot coal. This was because the hot coal passed the same point of observation approaching fifteen times per second reacting upon the same particular sensory nerves so frequently the light did not have time to fade out before it was again originated.

OPERATION OF MOTION PICTURES

Thus the motion picture inventor decided to take photographs of motion sixteen to the second being faster than the keenest eye could detect in order to prevent the appearance of flashing and seemingly give a steady light on the screen. Due to the lag of the images in each picture on the eye pro-

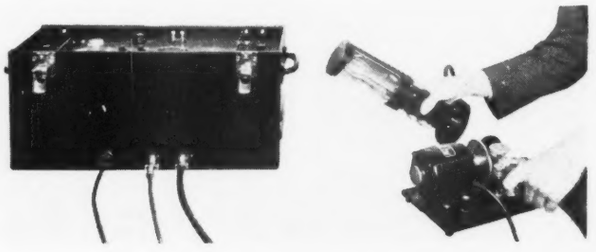


Fig. 1.—View of Edgerton Stroboscope, made by General Radio Co., Cambridge, Mass. The equipment proper consists of a metal cabinet into which are built all of the parts except the detachable mercury-arc lamps shown at the right. The cover of the cabinet, however, is designed to receive the detachable mercury-arc lamp which is mounted in a bakelite housing.

It is claimed by the manufacturer that the requirement of a short and brilliant light flash is obtained in the Edgerton Stroboscope by a high-intensity mercury-arc lasting but five micro-seconds which is sufficient time for an object traveling a mile a minute to move only 0.005 in. Fundamental synchronism can be obtained through flash speeds of the instrument up to speeds of 10,000 r.p.m.

The synchronous-motor friction-driven variable-speed contactors is optional equipment. This contactor is shown at the right and consists of a constant-speed synchronous motor driving a revolving commutator which makes a contact once each revolution. The flash speed is varied by sliding the driven wheel along the rack. This timer is generally used for viewing machinery in slow motion, studying vibration, hunting, relay action, etc. The position in the cycle of motion at which the flash occurs is adjusted by revolving the contactor head. A newspaper clipping on the end of a shaft can be stopped by the light and turned to the proper position for reading the phaser. Newsprint is easily read while revolving 1800 turns a minute.

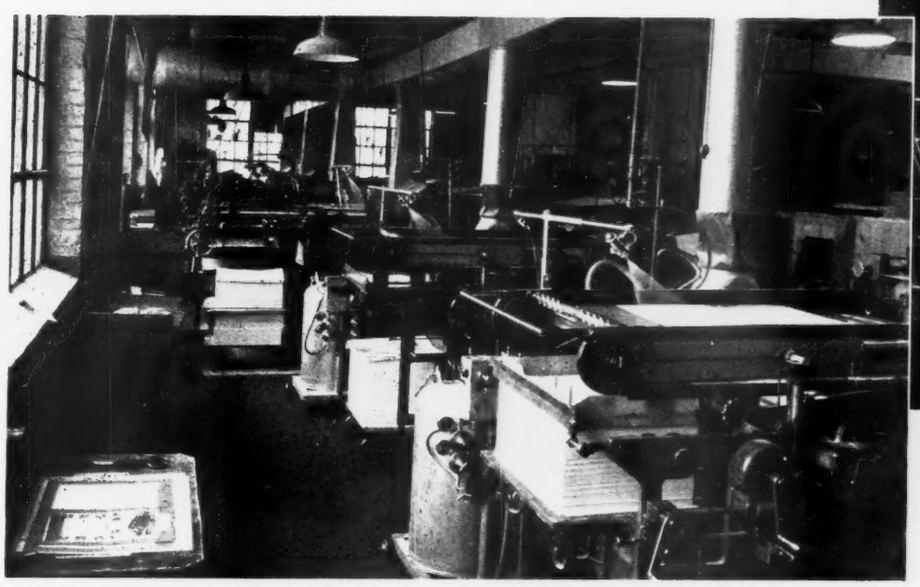
gressive positions blend enough so that they seemingly run together producing the appearance of continuous and uniform motion in keeping with normal movement of the objects being filmed. Thus we have "smooth" movement.

To people whose eye nerves do not feel the impulses* of light as quickly as normal, that is, do not sense the originations and changing variations in light intensity always gain the sense that the motion pictures blur in their eyes slightly. In other words they do not see each picture quickly enough before the next one is flashed. This leads them to think they

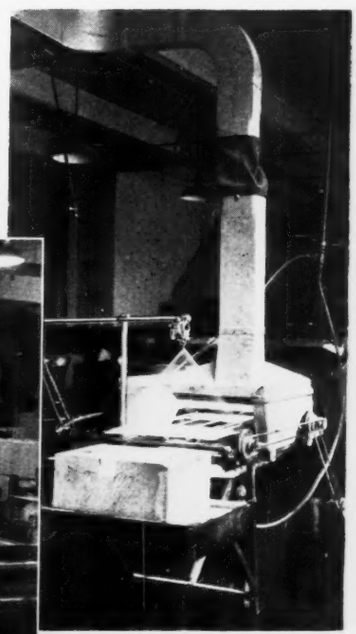
*Refer to the author's article, "The Electric Eye—Man's New Servant," explaining light and how we see it. PRINTING EQUIPMENT ENGINEER February, 1933.

"....the Paasche 'NO-OFFSET' Process Is the Most Valuable Accessory In Our Plant"

» » » says William F. Schmidt, President, Schmidt Printing Company, Chicago, who started with one unit and now has eight.



● Battery of six 2-color Miehle Automatic and Horizontal Presses, in plant of Schmidt Printing Company, all equipped with Paasche "No-Offset" units.



● Close-up of Miehle Vertical Press showing how the Paasche "No-Offset" Process protects printing against ink offset or smudging without slipsheeting, racking or ink doctoring.

WRITE for your copy of this remarkable book that both explains and demonstrates the Paasche "No-Offset" Process. Over-Printing, spot varnishing, large heavy ink areas, metallic ink, etc., and press run at full speed — everything that might cause ink offset or smudging has been included in this book.

"THE Paasche 'No-Offset' Process absolutely prevents ink offset on even the heaviest forms of over-printing, including metallic inks," Mr. Schmidt wrote. "It has not only eliminated the cost of slipsheeting but has stepped up our production on that class of work 40%. We are using it also on jobs that would normally not require slipsheeting because with it we can run the heaviest forms at top speed, thus gaining from 10% to 20% on running averages."

The operation of the Paasche "No-Offset" Process is simple and positive. The freshly printed sheet is treated with millions of invisible microscopic particles, that vanish and dissolve instantly with the subsequent impression. Automatically controlled for any size sheet by an "electric eye" that prevents waste of material. The "No-Offset" solution is non-congealing, non-freezing and not affected by temperature changes. A single gallon covers from 150,000 to 200,000 square feet of printed surface.

Investigate — Hundreds of printers are saving thousands of dollars annually on presses equipped with a Paasche "No-Offset" unit. Ink offset and smudging are positively prevented without slipsheeting, racking or thinning of inks. Speeds production. Insures finer workmanship. Used on almost every type of printing press. Write for descriptive literature today.

Paasche Airbrush Co.
"NO OFFSET" DIVISION
1909-31 DIVERSEY PARKWAY CHICAGO, ILLINOIS

need glasses or that those they have need adjusting. Sometimes headaches result in extreme cases. If the oculist says the glasses fit nothing can be done about it unless one can bribe the operator to somehow run the film a few frames per second slower. Slowing down would cause a sensation of flashing to the normal eye. The industry has set the picture speed to fit the greatest majority of cases.

This should clear up many an argument with the oculist. The only thing for people with "slow" eyes to do is to always take a seat the best distance from the screen to give the least strain and try to train the eye to speed up. There are exercises for this very thing. Many a pair of spectacles have failed through the lack of understanding of "light" and how and why the eye is expected to see.

STROBOSCOPE DESCRIBED

We have to grasp the foregoing principle in order to understand the use of the stroboscope and how it works. The stroboscope is merely a somewhat complicated device for flashing illumination periodically and in split seconds and the number of split seconds under control. The lamp of the stroboscope is such that it can be lighted and caused to go entirely out and be relighted as many as 80 times per second. The lamps are of the vapor tube type, either mercury, neon, etc., which stay illuminated only while electric current of the right character is flowing through them. There is the necessary electrical apparatus to produce the proper current for the light. There is also a synchronous motor operated contactor switch which turns on and off the electric current to the lamp as many times per second as the lamp is physically capable of handling. The number of flashes on the lamp is delicately controlled by an adjustment device on the contactor. The motor may be replaced by a tachometer tip and flexible cable to the contactor so that the number of flashes of illumination per second may become a mathematical function of the rotation of some part of a machine and mechanically driven from the same. Thus a flash of light can be made to occur any integral number of times or integral fractions of rotations of a shaft, or wheel, rocking of a cam, or any rotating object of any shape.

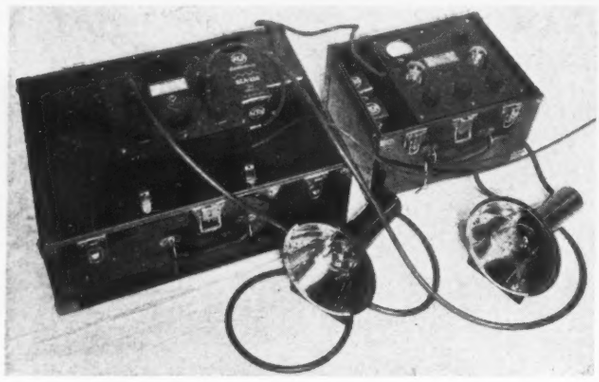


Fig. 2.—The four units of the Westinghouse Stroboglow are: Foundation unit (shown at left); oscillator (shown at right); lamps and a contactor (not shown). The foundation unit supplies voltage for all filaments, plate and grid circuits. The oscillator produces accurately-timed impulses which cause the lamps to glow, the frequency being determined by controls. Duration of lamp flashing is a fraction of a microsecond. The flashing speed range is 400 to 10,000 per minute. The lamp unit has a chromium-plated reflector which concentrates the beam so that recurring flashes can be directed to the part being investigated. The color characteristics of the lamps occur at a high point on the eye sensitivity curve. The contactor (not shown) is a device which can be used in some cases instead of the oscillator. It provides a rapid electrical make-and-break and is driven mechanically by the machine being viewed.

In a bulletin issued by the Westinghouse Company it is stated that the Stroboglow is suited to the analysis of any recurrent mechanical phenomena. These include rotating machinery, reciprocating parts, vibrating members and their various combinations. Dynamic analysis—the determination of the action of parts under the stress of regular working conditions—is the field served by the Stroboglow.

For instance, a cracked spoke in a flywheel will appear perfectly sound when stationary. Under the centrifugal force of rotation, the heavy rim will force the crack to open up, and the timed flashes of the stroboglow will quickly show the defect.

If an airplane propeller whirling at 1200 revolutions per minute is observed under normal artificial light, it will appear as a continuous blur. Substitute stroboscopic illumination which provides light at exactly 1200 equally spaced intervals per minute. Then, the propellor will be visible only when illuminated, which is only a small part of its total revolution. But since it is always illuminated in exactly the same position, it appears to be stationary. Should the light speed be changed to 1175 flashes per minute while the propeller runs at 1200 r.p.m., the interval between flashes is slightly longer than the time of one revolution. Consecutive glimpses will each be shifted a small amount in the direction of the rotation of the propeller. The result is that the propeller will appear to be slowly rotating at 25 r.p.m. Vibration and distortion could then be viewed as it occurred.

Images obtained by stroboscopic action depend upon the shortness of the illumination periods for their clearness. If the airplane propeller is seven feet in diameter, the tips are moving at 5280 inches per second at 1200 r.p.m. A duration of flash of twenty-millionths of a second (20 micro-seconds) would illuminate the tips while they were moving one-quarter of an inch. This would result in an image blurred by that amount.

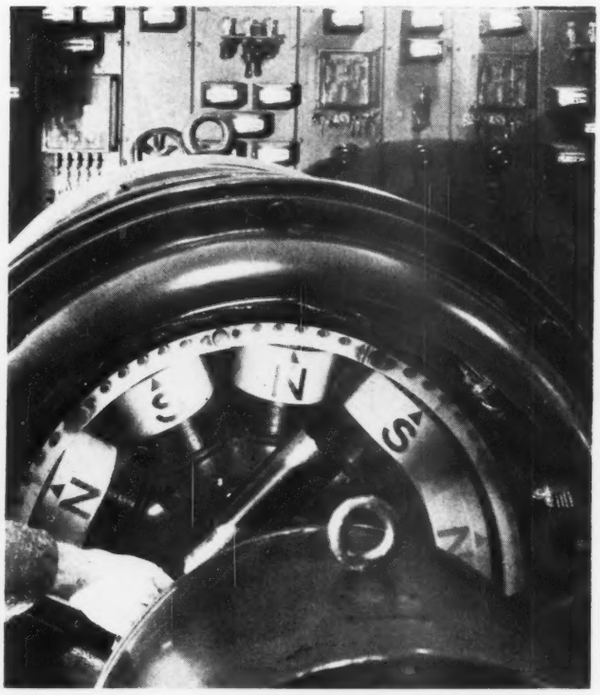
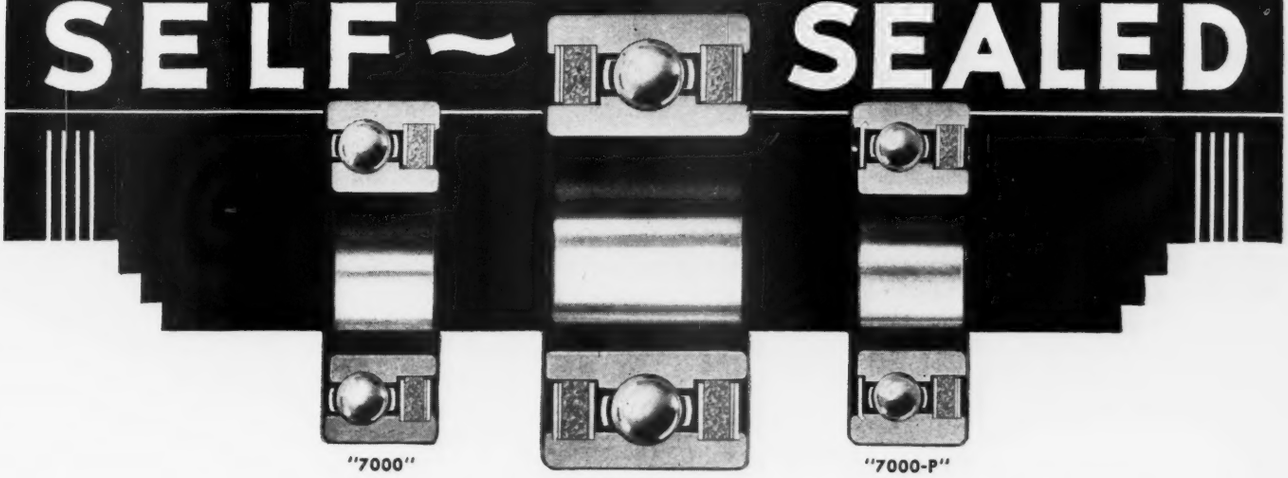


Fig. 3.—The stroboscope permits stopping the motion of a part of a printing press (visually) for examination, or its product may be "stopped" at any part of its operating cycle. Reproduction of a remarkable photograph showing the Edgerton Stroboscope in operation. This is a photograph of a large alternator and was taken by stroboscopic light. In the picture the revolving rotor appears to be held in a stationary position. It is hard to believe that the rotor is not stationary. At the front of the alternator in the original picture he commutator bars, due to rotation, showed a decidedly blurred effect. It was impossible to reproduce this part of the photograph owing to a considerable reduction by the photoengraver and to the loss of sharp detail caused by the 120-line halftone screen.

USE OF STROBOSCOPE

Now consider action taking place in the dark or dim light by comparison to the brilliant illumination present when the stroboscope lamp is lighted. Then consider that the motion is rhythmic or often repeated faster than the eye can follow like the flying shuttle on a loom, whirling of a fan blade, travel of an inking roller, movement of an impression plate, operation of a folding mechanism, etc. If we illuminate the machine parts in motion with flashes from the stroboscope lamp once each time the motion is repeated if motion is rather slow or once each tenth time or each fiftieth time if fast or

SELF-SEALED



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Felt seal entirely within confines of both rings and therefore not exposed to injury.

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Wide, solid inner and outer rings with maximum contact on shaft and housing, making inserts in housing unnecessary and militating against slippage, looseness and escape of lubricant past inner ring.

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very rapid by adjusting the flash time control the object will be seen to stand still though it really may be moving in a circle or elipse, reversing in a straight line or whatever path it may be traveling. The object does not move perceptibly during the very brief flash of illumination, thus if the illumination comes at the same place in the cycle of motion the object looks as though it were standing perfectly still. The flashes can be made to occur more often than fifteen to the second, thus the object appears in its natural form clearly defined and apparently motionless.

Now, if we adjust the flashes to occur out of synchronism with the cycles of motion, say slightly more slowly, the object seems to advance in normal direction slowly at first or more rapidly as the flashes are further adjusted out of synchronism. If the flashes are adjusted to over speed synchronism the object seems to reverse itself in motion. This all is because the illumination occurs at an earlier or later point during the travel of the object in its orbit. If the object is traveling any old way in an orbit without form it is seen to jump instantly from one position to another if the flashes are less than fifteen to the second or appear as a blur if illuminated more often than fifteen to the second.

PRACTICAL APPLICATION OF STROBOSCOPE

Thus the value of the device is brought out. By timing the flashes of illumination to the complete cycle of motion and also number of flashes per second we are able to study in minute detail the function of any moving thing no matter how fast it travels, through what shape of path, or what kind of work it may be required to do.

It is found helpful to cover with white chalk or better with luminous paint the moving object being studied.

We may take the folding mechanism upon a newspaper press for simple illustration. There are fingers, arms, traveling rollers, belts, cutting knives, etc., driven by shafts, gears, cams and belts, all of which have to move in complete unison with one another, each performing a certain task just at the right time. The experienced operator familiar with his machine by merely observing the papers as they build up can usually detect the part of the mechanism that is getting out of adjustment or repair because his knowledge is based upon an understanding of all the parts. But if proper experience is absent or in building a new one to get it to work, particularly if new principles are involved, a stroboscope study cuts down tedious hours of adjusting, trying and rebuilding.

STROBOSCOPE STUDY

One or more parts may be whitened and watched with the aid of the stroboscope. Different points in their travel may be illuminated progressively and exactly what occurs may be plainly observed, particularly if working properly, for each part then returns to exactly the same place at the same interval of time. If the part appears blurred or jumps, it is because it is not in exactly the same place at each time of illumination and thus is not functioning properly in its intended orbit of motion. By studying its full orbit of motion, just where the trouble begins and leaves off is plainly visible. Thus the proper shape of a cam, length of a lever, wabble of a bent shaft or gear, or period of vibration in a poorly balanced mechanism is exactly determined.

Photographic attachments are provided so that if the human eye is not sufficiently accurate pictures may be taken of any point of motion for leisure study.

Opens New Branch

The George H. Morrill Company, Division of General Printing Ink Co., has announced the opening of a branch in Detroit at 170 East Larned St. The entire third floor of the building will be taken. The Detroit branch, which will be a sub-branch of the Chicago office, was put in operation shortly after May 1.

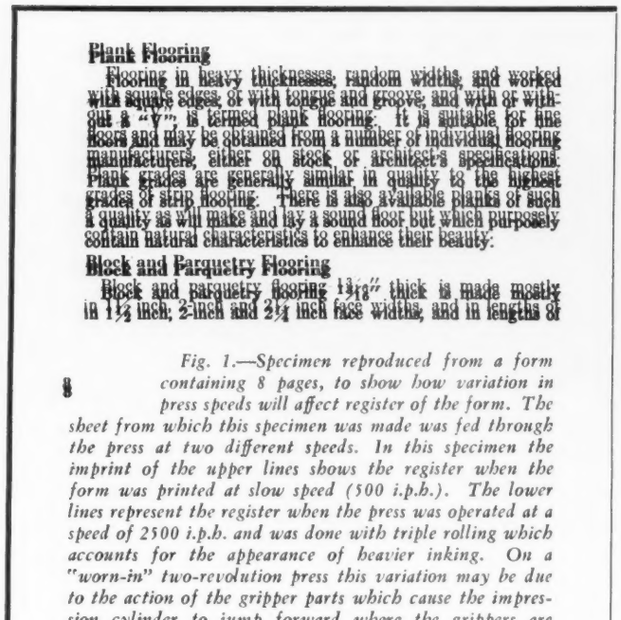
Variation

In Register at Variable Press Speeds

By ALTON B. CARTY*

WITH the introduction of the two-revolution printing press a variation in register was found to develop at different speeds of the machine. Why this variation should be noticeable, when all parts of the machine are controlled and governed by closely geared units, has never, so far, been satisfactorily explained.

To overcome the effects of this troublesome experience pressmen generally mark the different lots of


Plank Flooring

Flooring in heavy thicknesses, random widths, and worked with square edges, or with tongue and groove, and with or without a "V", is termed plank flooring. It is suitable for fine floors and may be obtained from a number of individual flooring manufacturers, either on stock or architect's specifications. Plank grades are generally similar in quality to the highest grades of strip flooring. There is also available planks of such a quality as will make and lay a sound floor but which purposely contain natural characteristics to enhance their beauty.

Block and Parquetry Flooring

Block and parquetry flooring 13/16" thick is made mostly in 1½ inch, 2-inch and 2¼ inch face widths, and in lengths of

Fig. 1.—Specimen reproduced from a form containing 8 pages, to show how variation in press speeds will affect register of the form. The sheet from which this specimen was made was fed through the press at two different speeds. In this specimen the imprint of the upper lines shows the register when the form was printed at slow speed (500 i.p.h.). The lower lines represent the register when the press was operated at a speed of 2500 i.p.h. and was done with triple rolling which accounts for the appearance of heavier inking. On a "worn-in" two-revolution press this variation may be due to the action of the gripper parts which cause the impression cylinder to jump forward where the grippers are caused to begin their downward stroke to contact the sheet at the guides.

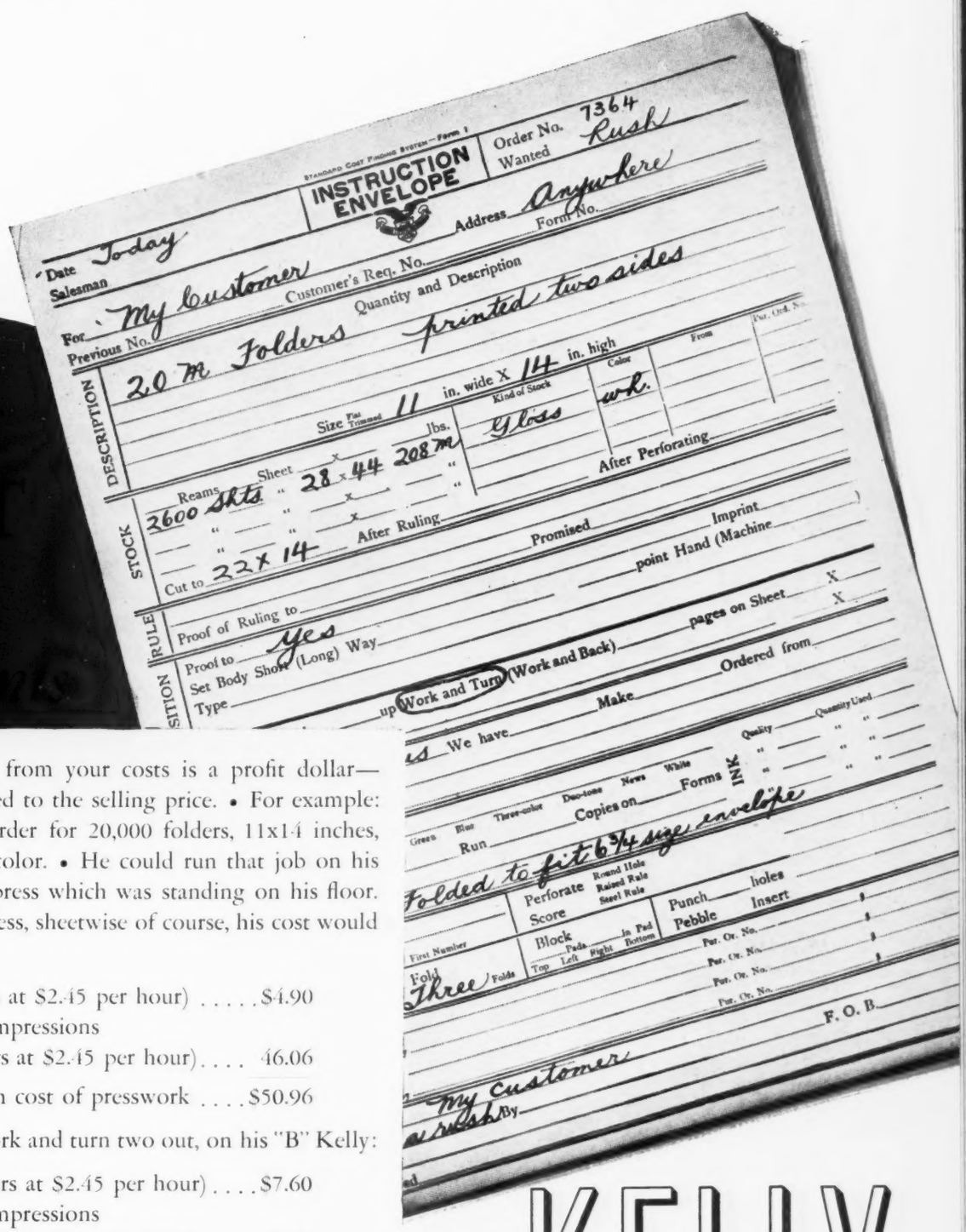
stock that are run on change of speeds, when for any reason change of speeds is made necessary, intentionally or otherwise.

In an attempt to explain this discrepancy in register some pressmen say the trouble is due to an uneven setting of the grippers, or to a loosely anchored feedboard. An official of a leading printing press manufacturing company has the following to offer:

> I cannot give the answer to this question. What might help one press is not the answer to another press. Each press may have something a little different about it than another, even though they are supposed to be like two peas in a pod, and it takes very little to affect register from high to low speeds. Naturally the difference between presses becomes greater as they become older. However, one meets up with a press now and then that will register at any speed.

*Chairman, Research Committee, Washington (D. C.) Club of Printing House Craftsmen.

A *Dollar Saved* IS A DOLLAR NET . . .



Every dollar you can cut from your costs is a profit dollar—equivalent to a dollar added to the selling price. • For example: a certain printer had an order for 20,000 folders, 11x14 inches, printed two sides in one color. • He could run that job on his "B" Kelly or on another press which was standing on his floor. If he ran it on the other press, sheetwise of course, his cost would have been as follows:

Make-ready (2 hours at $2.45 per hour)	$4.90
Presswork, 40,000 impressions (18.8 hours at $2.45 per hour)	46.06
Total production cost of presswork	$50.96

But, naturally, he ran it, work and turn two out, on his "B" Kelly:

Make-ready (3.1 hours at $2.45 per hour)	$7.60
Presswork, 20,000 impressions (9.4 hours at $2.45 per hour)	23.03
Total production cost of presswork	$30.63

On this job the printer made an additional presswork profit of $20.33—because he ran the job on a Kelly. • Costs may vary with different equipment, but the fact remains—on most of the jobs handled in the average printing plant, the Kelly makes many an extra dollar.

KELLY

AUTOMATIC PRESSES

Kelly Presses are equipped with Kimble Motors—motors designed especially for the Graphic Arts Industry.

AMERICAN TYPE FOUNDERS SALES CORPORATION, ELIZABETH, NEW JERSEY

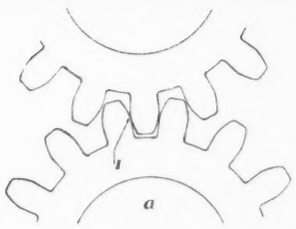
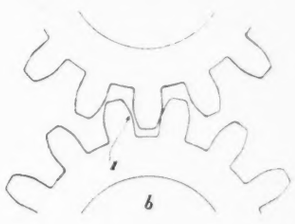


Fig. 2.—Simple diagram with unproportionate gear teeth to show action taking place in the gear teeth of a two-revolution printing press. On the printing stroke, the impression cylinder gear and the intermediate gear are in close mesh like at 1 in the a diagram, but when the grippers close upon the sheet at the lifting of the guides the gear of the impression cylinder is not in full mesh with the intermediate gear as shown at 1 in the b diagram above, because the cylinder is lifted to premit bed to travel forward at the time the grippers close on the sheet. It is at this time that the action of the gripper rod in engaging a stud on the press frame may cause a slight jumping forward of the impression cylinder which extra-movement will vary according to the speed at which the press is operated.



There is no variation in register on drum cylinder presses, at least the writer has never so observed, neither is a variation in register always strongly noticeable on newly-installed two-revolution presses. It is only after the mechanism has been "worn-in" (as it is described) that a variation in register develops.

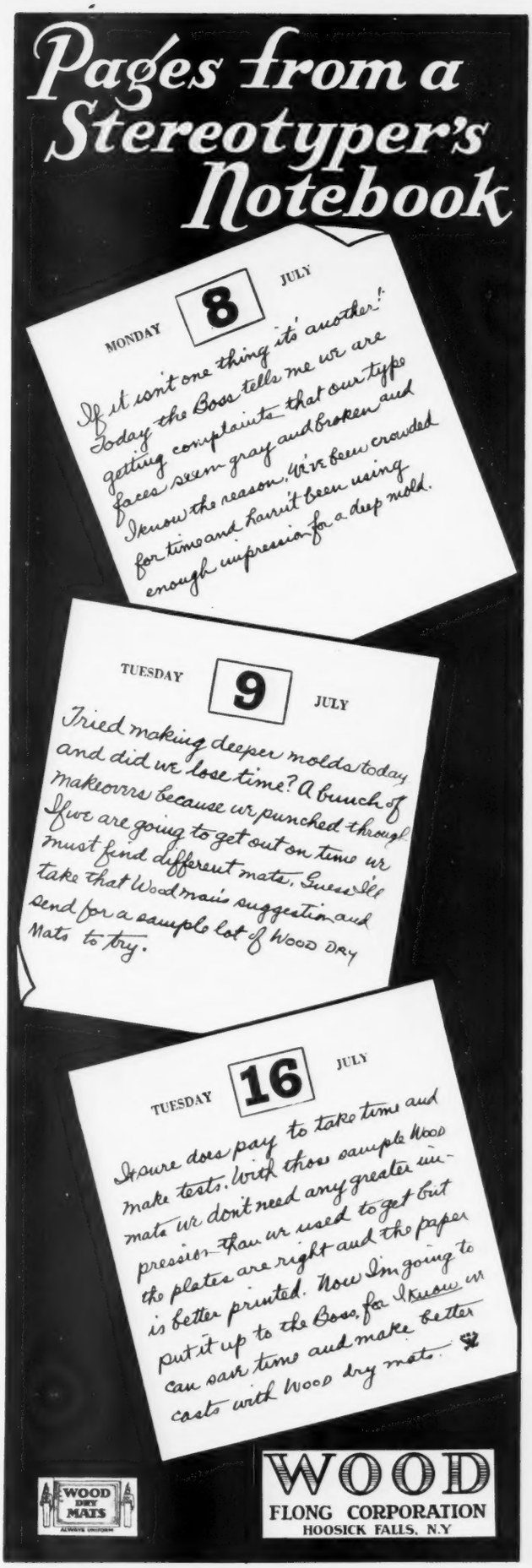
On the printing stroke of the two-revolution press the cylinder gear and the intermediate gear are in close mesh, but when the grippers close upon the sheet at the lifting of the guides the gear of the impression cylinder is not in full mesh with the intermediate gear.

This lack of full mesh permits of considerable backlash, which persists almost to the printing stroke of the bed and cylinder.

There is, however, no variation in the print on the top-sheet of the impression cylinder at variable speeds, this being controlled by the register rack on the bed of the press.

A close study and survey by the writer, after many years spent in the pressroom, has convinced him the cause of the trouble is closely related to the parts operating the grippers.

The mechanism of the gripper movement consists of a rod to which the grippers are attached; a channeled part on the end of the gripper rod which engages a stud on the frame of the press, and a rod attachment carrying a coiled spring of the push variety which tumbles the open grippers to contact with the edge of the cylinder in order to carry the sheet to be printed through the printing stroke.


Pages from a Stereotyper's Notebook
MONDAY 8 JULY
If it isn't one thing it's another! Today the Boss tells me we are getting complaints that our type faces seem gray and broken and I know the reason. We've been crowded for time and haven't been using enough impression for a deep mold.
TUESDAY 9 JULY
Tried making deeper molds today and did we lose time? A bunch of makeovers because we punched through. If we are going to get out on time we must find different mats. Guess I'll take that Wood man's suggestion and send for a sample lot of Wood Dry Mats to try.
TUESDAY 16 JULY
It sure does pay to take time and make tests. With those sample Wood mats we don't need any greater impression than we used to get but the plates are right and the paper is better printed. Now I'm going to put it up to the Boss for I know we can save time and make better casts with Wood dry mats.
WOOD DRY MATS
WOOD
FLONG CORPORATION
HOOSICK FALLS, N.Y.

The full unit may be compared to the operation of a lever, a fulcrum and a weight. The rod with the spring is the lever, the stud on the frame of the press is the fulcrum and the cylinder is the weight.

Upon turning the cylinder by hand to the point where the grippers just begin the downward stroke to contact the sheet at the guides, a slight jumping forward of the cylinder is noticeable. This jump may vary to the space of almost 1/16 in.

This movement does not affect the position of the sheet at the guides, but the cylinder has been carried forward by the action of the spring on the gripper unit which results in a shorter bite of the grippers on the sheet.

It can be understood readily that this jump of the cylinder will continue *until the speed of the press is faster than the jump* referred to, after which there will be less bother, if any, about register.

One pressman has attached a braking device to the frame of his press under the feed board which contacts the bearer on the cylinder when it rises for the grippers to close upon the sheet, and sufficiently firm to hold back the cylinder. The brake counteracts the backlash in the gears of the cylinder and the intermediate gear. If practicable, reducing the tension of the gripper spring, and tightening the cylinder bearings will contribute to the lessening of the register variation.

The writer feels assured the variation of register may be corrected along the lines of this survey.

Literature Gratis

A bulletin on a 19 in. by 25 in. high-speed offset job press and a folder on printing machinery vibration eliminating units will be sent gratis to those requesting either or both through *Printing* EQUIPMENT *Engineer.*

Helping to Spread the "Good News"

A six-page illustrated extra of American Type Founders' house organ, Good News, *being whipped into shape overnight at the recent regional sales conference of the organization in Philadelphia. The staff members shown at work at the temporary city desk are, left to right: Miss Mona Lisa; H. W. Alexander, General Sales Manager; F. C. Cole, Sales Promotion Manager; and Herb Zimmer, of the general office. Both Alexander and Cole are former metropolitan newspaper reporters. It was good news for all concerned when the paper was off the press and ready for distribution early Monday morning.*

More than 125 members of American Type Founders Sales Corporation from Atlantic Coast offices attended the conference, held over the week-end of April 13-15. Three other regional conferences, held in San Francisco, Cincinnati and Chicago, took place earlier in the year.

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Metzger Photo Supply Co., 1091 So. Main St., Akron, Ohio
G. C. Dom Supply Co., 125 East Pearl St., Cincinnati, Ohio

Photo-Lith

Cleanliness Of Supreme Importance Throughout Process

By FRANK O. SULLIVAN

THE first and foremost thing to be fixed in the mind of the student of offset lithography is cleanliness. This must be borne in mind in all his work.

Of the three major methods of printing, letterpress, gravure and offset lithography, in the Graphic Arts field—two of them, gravure and letterpress, are purely mechanical, while the other, offset lithography, is a chemical method of printing. Therefore, the utmost care must be taken in obtaining pure chemicals, maintaining clean negatives and perfectly clean press plates.

In fact, cleanliness must be observed throughout all operations during the production of the press plate and its printing on the press. If the surface of the plate is touched with greasy fingers or with inky fingers (as shown in the accompanying illustration) these marks will print on the paper.

Indifferent or sloppy methods only bring disaster and imperfect results, which will be unsatsifactory both to the operator and the customer. Too much stress cannot be placed on this word cleanliness and should be always kept in mind by the beginner in offset lithography.

UTILITY OF ZINC PLATES

Zinc is the most favorably known metal in the lithographing field, and is the one most universally used, although some few of the lithographers prefer aluminum. Aluminum is harder to work with, especially for the beginner.

Zinc comes in thin sheets and should be thoroughly cleansed with a solution of caustic soda and water, or any one of the three solutions mentioned in this article. Suitably grained plates can, however, be purchased from a number of concerns who make a specialty of furnishing them to the lithographing industry.

When you have selected the plate for the job in hand, it must be borne in mind that a fine grain is more suitable for halftone work, a medium grain for line work, and a coarse grain for the usual poster work. The next important step is the thorough cleansing of the plate before applying the sensitive coating. This is essential and must not be overlooked.

CLEANSING PLATES

With the properly selected plate ready, mix the following solution:

Cyanid of potassium	2 ounces
Water	1 gallon
or	
Sulphuric acid	1 ounce
Water	100 ounces
or	
Caustic soda	1 pound
Water	1½ gallons
or	
Nitric acid	1 ounce
Water	100 ounces

Any one of the above solutions will do the work required in cleansing the press plate.

COUNTER-ETCH SOLUTION

Place the plate in the water trough and pour on the solution selected, using a scrubbing brush over the entire surface in a thorough manner. This will not only clean the plate, but will also avoid the danger of oxidation or injury to the surface of the plate. After a thorough scrubbing, wash the plate well under running water and then counter-etch with the following solution:

Water	1 gallon
Powdered alum	3 ounces
Nitric acid	1 to 2 ounces

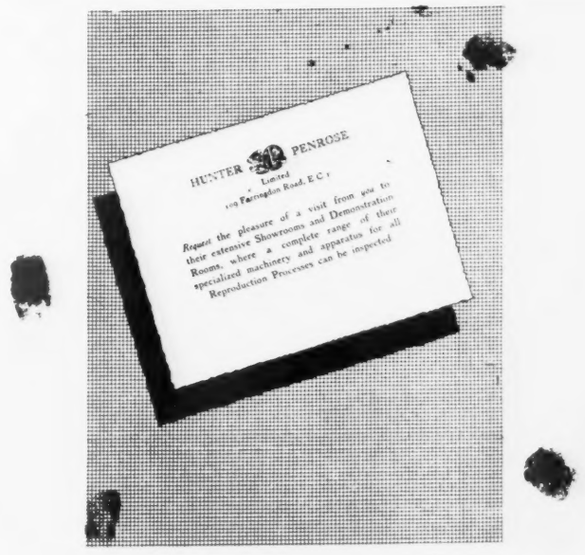
The above solution should be kept on the plate for a few minutes, and then, with a piece of felt thoroughly washed under running water.

FAVORITE SENSITIZER

The plate is then drained off and placed in the whirler for coating with the regular albumin sensitizer. The favorite formula, although there are many variations of this particular sensitizer, is the following:

Egg albumin (flake and preferably Merk's)	3 ounces
Water	32 ounces
Ammonia	15 to 20 drops

After mixing this solution, a piece of cotton should be placed in the bottom of a glass funnel and the solution filtered through it into a glass container. When pouring on the press plate, a piece of cheese cloth should be placed over the mouth of the container to avoid bubbles on the plate.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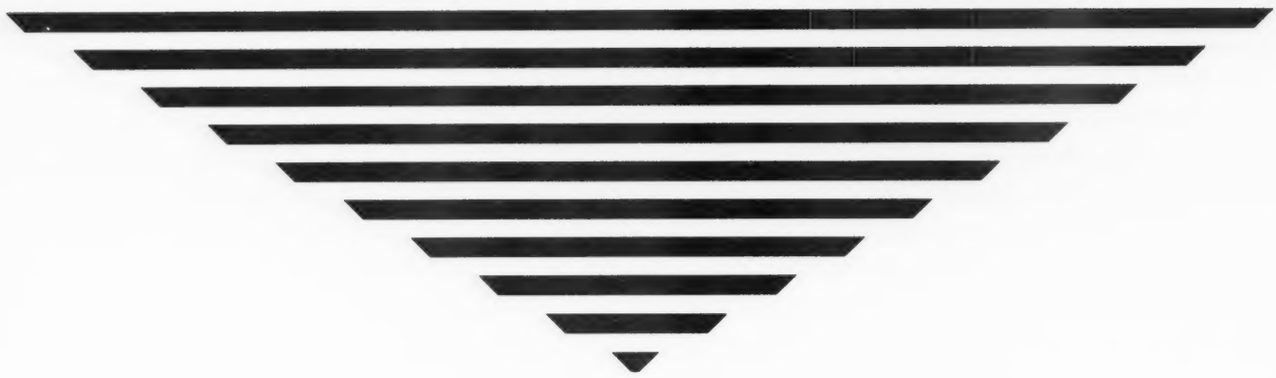
Request the pleasure of a visit from you to their extensive Showrooms and Demonstration Rooms, where a complete range of their specialized machinery and apparatus for all Reproduction Processes can be inspected

Reproduction of middle section of an offset press plate, showing smudges caused by contact of pressman's inky or greasy fingers. The printing surface projects so slightly above the plate that the least trace of ink or grease will be transferred to the paper stock.

WHIRLING THE PLATE

When the plate is placed in the whirler it should be rinsed with clear water while the whirler is being slowly started. When the water has been thrown off, the solution or sensitizer should be poured on the center of the plate while in slow motion, and gradually working the pouring out to the edge of the plate. This slow motion should last from three to five minutes. Then the speed of the whirler should be increased to between 70 and 80 revolutions per minute. It is not advisable to run the whirler in excess of 40 to 50 revolutions per minute while pouring the sensitizer on the plate. If run too fast there will be a tendency for the solution to be thin in the center of the plate, and thicker on the outer surface.

The above formula for the sensitizer is for cold weather use. The amount of bichromate of ammonia should be decreased when warm weather approaches. In the real hot days of the summer it should be cut down to half the amount specified for cold weather.



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Cost

System in Composing Room Is Powerful Fulcrum

By CHARLES H. STOUT*

PRESUMABLY a newspaper foreman is selected because of his combination of technical knowledge and qualifications for leadership. Ordinarily he is more advanced in skill at the trade than in management ability. Hence, this latter quality is in greater need of development.

When a man is made foreman he realizes that he must become more familiar with the problems of production management. It is his job to run the department economically. He is very likely to search about to find ways and means of effecting improvement. He may analyze routine to see if it can be altered to become more efficient. Perhaps this would involve a more practical arrangement of machinery and equipment.

Each employee's rate of production is sure to be scrutinized. Tom Jones in the ad alley might do better on the make-up. Bill Smith may be slow as a news machine operator but may have the qualities desirable in an ad operator.

Then there is the question of cooperation from the advertising manager and the executive editor. The flow of news and advertising copy presents a perplexing problem over which a foreman has no direct control. His costs of operation are influenced by the degree of efficiency in the news and advertising departments. In his attempt to obtain cooperation, a foreman often meets his first major disappointment.

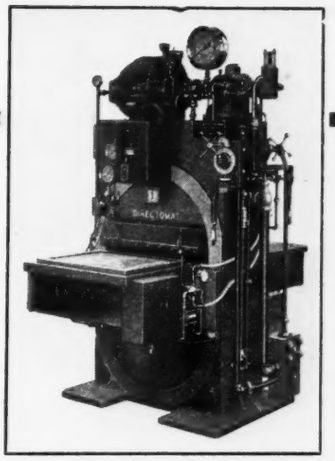
Editors claim, and rightly so, that the story of a news event cannot be written until the event has actually happened. Foremen readily agree. However, a large portion of space is devoted to features, correspondence, editorials, columnists' blurbs, and feature stories which are not spot news. This copy the composing room wants and is entitled to receive early.

Editorial workers, being human, are prone to let work slide until the last minute. Time copy comes to be handled in the same manner as spot news. For example, one day a sports columnist may get his copy in a half hour later than usual. The composing room foreman accepts it because to leave it out might be suicidal in more ways than one. He may caution the columnist not to be late again. But regardless of the good intentions of the columnist, he now is conscious of a later dead-line which he soon comes to take advantage of. In this way a bad custom grows, much to the chagrin of the foreman and the out-of-pocket expense of the publisher.

Theoretically it would seem a simple problem to keep the news department ahead of, instead of behind, the composing room. But in practice, however, it proves quite different. Let's assume a hypothetical case in which the foreman tries to enlist the cooperation of the executive editor. With the best of intentions the editor may repeatedly promise cooperation but these promises fail to materialize.

After several disappointments the foreman may turn to the publisher. Here again he meets disappointment because he does not present definite evidence showing just how the news department could cooperate and what savings such cooperation would effect. Instead of presenting production records giving time of receipt of certain classes of news copy, and charts illustrating how earlier receipt of such copy would fill standing time gaps, he offers only a verbal statement in summary of the situation. Such a statement, being verbal, is not

*Assistant to President, Matrix Contrast Corporation, New York, N. Y.



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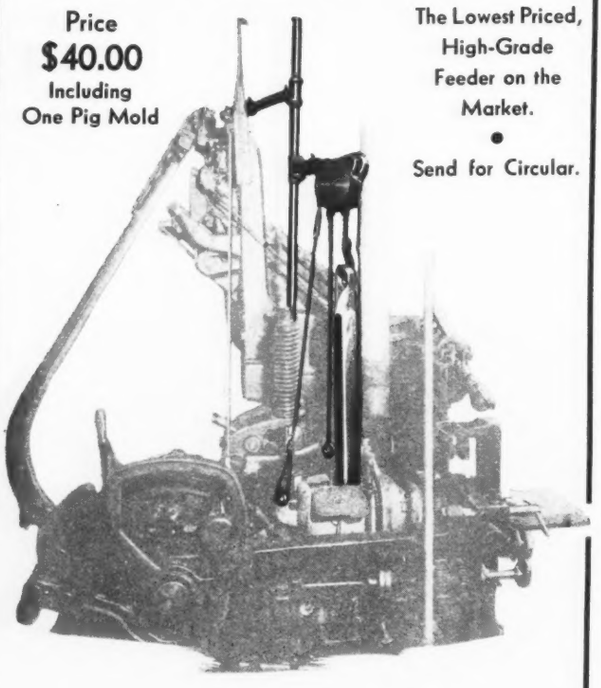

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always clear and the publisher merely carries away a vague idea. Later, on consulting the executive editor he is told that the news room is getting copy in as soon as possible. Without records or charts to substantiate the foreman's claims the publisher usually ends the talk with the editor by requesting that the news room should try to get copy in early enough to satisfy the foreman. And thus may end a worthy effort.

There may be promises that something will be done and some improvement may follow. But more than probably the editorial department soon slips back into the same old rut. Repeated efforts bring the same result. The publisher grows weary of hearing the complaints and by word or action conveys the impression that he does not want to be bothered. Thoroughly discouraged, the foreman reasons that if the owner is not interested in saving his own money, why should anyone try to help him.

Presumably a foreman is an expert in his line. Like a physician he may prescribe a course of diet but he lacks authority to cram it down the patient's throat. Why give advice, he asks, unless it is to be accepted and followed? Yet the foreman may be held at least partially responsible for this failure. His first fruitless effort should have illustrated that he would have to offer something more than opinions to prove that reform would be both profitable and possible.

After one such experience the foreman should have begun to assemble definite information in order to build up an opinion-proof case. This would have necessitated the keeping of records of performance. The use of a practical cost system might thus have been started.

On the other hand the publisher should not be held entirely blameless. He might easily have said to the foreman, "Show me exactly how the news department can better cooperate to save composition time, and I will see that they toe the mark." With such encouragement and actual backing the foreman should soon be looking for new methods of economizing.

Advertising departments, too, slip into bad habits which could be corrected. Often times copy could be delivered to the composing room earlier if solicitors were made to realize that it is part of their job to get copy in early. Display advertising copy dead-lines have been pushed back (by practice not by rule), particularly since linage started to decline, until they have become barely distinguishable from edition times. Because of this new "buyers' market" publishers hesitate to interfere for fear they will lose part of their present low volume. Yet, the trend can be continued only at higher and higher composing room costs.

Failure to obtain cooperation from other departments is not the only manner in which a foreman comes to disappointment. He may recommend the purchase of new products or equipment which he knows would return their cost within a limited period of time. But the publisher often discounts his advice. After several rebuffs the foreman becomes discouraged. Here again, factual information would help to prove a worthy case. A comparison of production records, assuming they were adequate, with a schedule of the guaranteed performance of the proposed products or equipment would definitely disclose the possibility of savings. Fortunately, foremen are coming to realize that reliable costs records can be made quite valuable to them.

More and more newspapers composing room executives are becoming conscious of the persuasive power of incontrovertible cost records. Anyone who has recently visited newspaper composing rooms throughout this country could hardly help noticing the quickening pace of development of this trend. But for certain noteworthy and commendable exceptions it might be said that an entirely new school has been developed. At any rate it is no exaggeration to say that this progressive group is rapidly gaining new converts.

Although cost systems are being installed in many composing rooms throughout the country, the movement seems to

be getting a stronger hold in the middle western states than in any other section. Apparently led and inspired by Leon A. Link of the Des Moines *Register-Tribune* and Ray G. Leach of the Omaha *World-Herald*, many composing room foremen in Nebraska and Iowa are making thorough cost analyses. In adopting a uniform cost system for the optional use of its members, the Iowa Composing Room Executives' Association stands out as the first newspaper group to seek comparative unit cost information. Foremen installing this system definitely indicate their desire to be guided by facts rather than opinions.

It is no easy task to cast aside all time-worn conceptions nor to dare to question present methods of operation. Opinions are hard to shake out of one's mind. Nevertheless, this should be the course of procedure.

When buying pencils and typewriter ribbons, newspapers shop about for the lowest possible prices. Such supplies are zealously guarded and their consumption is scrutinized carefully. This same care is not exercised in expenditures for one of its largest items of cost, composing room labor. The records of few newspapers reveal what each composing room employee produces during the hours for which he is paid. Without such records fair comparisons and appraisals of composing room production are impossible.

Regardless of how a dollar is spent it is good business to know what was obtained for it. Only the most careless person would think of paying an invoice without checking to see that all the goods were received. Although labor cannot be placed in the same category as commodities, the same sort of rules should be applied in testing its value.

The proper checking of each employee's daily output may serve to spur the average rate of production, but this is only one possible benefit to be derived from adequate and accurate cost records. A foreman usually knows what each printer has contributed, or, at least what he is capable of contributing. Of greater importance is the disclosure of the effect of a poor copy flow and of indices pointing to more economical methods of production.

As soon as foremen are armed with adequate data, the tables are likely to be turned. With the aid of "the record" they will come to win more and more arguments. Opinions will have to give way to the actual evidence.

Furthermore, the attempt to obtain a thorough breakdown of costs indicates a desirable state of mind. It shows a willingness to be guided by scientific facts. Just as long as foremen recognize the possibility of improvement and earnestly seek remedial measures there is hope of more efficient composing room management.

The continued development of this growing trend should prove to be a boon to all sellers of equipment and services of definite economic value. Instead of having to be "sold," newspapers will begin to buy. For one, at least, the Matrix Contrast Corporation applauds the increased activity.

New Type Face by Monotype

Stymie Extrabold Condensed (490), a condensed version of Stymie Extrabold, has been announced by The Lanston Monotype Machine Company. The new face is a creation by Sol Hess and at present is being shown in sizes from 14-pt. to 72-pt.

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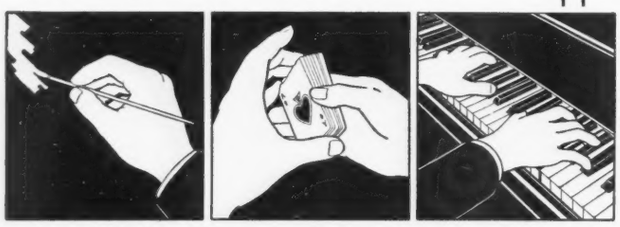

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APRIL-MAY

Composing Machines:

1,998,848. INTERNATIONAL JUSTIFICATION SIGNAL FOR MONOTYPE COMPOSING MACHINES. Leo A. Schmitt, Washington, D. C. Application October 13 1933. Serial No. 693,503. 11 Claims. (Cl. 116 — 67.)

1. The combination with the line-scale, em-rack and pointer of a record strip composing machine, the pointer being carried by the rack and moving over the scale as the rack advances, of a signal-means comprising a signal, an actuating member for the signal arranged in the path of travel of the pointer for operation thereby, a second pointer arranged opposite a selected graduation of the scale in advance of the actuating member, and means for preserving a predetermined distance between the second pointer and the actuating member.

1,999,991. TYPOGRAPHICAL MACHINE. Herman R. Freund. Brooklyn, and Arthur G. Sperry, Hollis, N. Y., assignors to Intertype Corporation, Brooklyn, N. Y., a corporation of New York. Application January 26, 1934. Serial No. 708,490. 20 Claims. (Cl. 199 — 49.)

1. In a typographical machine having a matric line transporter, a plurality of controlling means for governing the movement of the transporter and operable to cause movement of the transporter successively from a normal line receiving position to casting and line removing positions and return thereof to the normal position to perform an operating cycle, or to cause movement of the transporter from the normal position to casting position and return thereof directly from casting position to the normal position to perform another operating cycle.

2,000,029. KEYBOARD PERFORATOR AND COUNTER. Edward E. Kleinschmidt, Park Ridge, and Louis M. Potts, Evanston, Ill., assignors, by mesne assignments, to Teletypesetter Corporation, Chicago, Ill., a corporation of Delaware. Application September 4, 1929. Serial No. 390,352. 33 Claims. (Cl. 164 — 112.)

1. In a keyboard perforator, a perforating mechanism, a magnet adapted to operate the perforating mechanism, a plurality of contacts, any one of which is adapted to control the energization of the magnet, a group of keys corresponding to one kind of operation, a second group of keys corresponding to a different kind of operation, one of the contacts corresponding to one group of keys and controlled thereby and another of the contacts corresponding to the second group of keys and controlled thereby.

2,000,088. TYPE BAR MACHINE. Harley J. Megley, Chicago, Ill. Application January 28, 1933. Serial No. 653,966. 6 Claims. (Cl. 29 — 24.)

1. In a machine, the combination of a continuously operating reciprocatory means for moving a printing slug by intermittent motion in a given path, and movable means operable with the continuously operating means during a portion of its reciprocatory movement but during a period of intermission in the movement of the slug and constituting a part of the machine for operating upon the slug in a direction transverse to the normal movement of the slug in the path to form retention means on the slug.

Feeding and Folding:

1,997,850. SHEET FEEDER. Elmer W. Belluche and Frank R. Belluche, Racine, Wis., assignors to Christensen Machine Company, Racine, Wis., a corporation of Wisconsin, Application December 21, 1933. Serial No. 703,371. 9 Claims. (Cl. 271 — 37.)

1. In a sheet feeder, superimposed feed boards to support a bank of sheets, mechanism to feed the bank of sheets along the boards and from the upper board to the lower board, mechanism to separate the sheets from the end of the bank on the lower board for conveyance to a machine requiring predetermined alignment of the sheet therewith, and means to shift the feed boards together with the associated mechanism sidewise to adjust the relative sidewise position of the bank of sheets with respect to the machine being fed and thereby adjust the sidewise alignment of the sheets as they enter the machine.

2,000,636. SHEET FOLDING MECHANISM. Robert C. Flynt, Winston-Salem, N. C., assignor of two-fifths to Forrest G. Miles, Winston-Salem, N. C. Application July 20, 1934. Serial No. 736,239. 12 Claims. (Cl. 270 — 68.)

1. In a sheet folding mechanism, the combination of an element for forming folds and feeding a folded sheet; a roller for effecting commencement of a fold in a sheet and delivering the sheet to the fold-forming and feeding element; a common driving means for the fold-forming and feeding element and the roller; and driving connections between the driving means and the roller including an over running drive device, the driving connections being such as at all times to provide uninterrupted driving connection except for the over running drive device.

1,998,572. FOLDING MECHANISM. Charles Dewsberry, Chicago, Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois. Application January 19, 1932. Serial No. 587,497. 6 Claims. (Cl. 93 — 93.)

1. A delivery mechanism for high speed folders including in combination a rotary fly into which folded products are delivered, a moving surface onto which the products are placed by the fly, a kicker for displacing a product after delivery of a predetermined number of products and means cooperating with the fly to prevent outward movement of the products in the fly until the products are brought closely adjacent to the surface, the means permitting normal operation of the kicker.

2,000,261. SHEET SEPARATING AND CONVEYING DEVICE. Georg Spiess, Leipzig, Germany. Application July 30, 1934. Serial No. 737,627. In Germany July 10, 1933. 4 Claims. (Cl. 271 — 26.)

1. A sheet separating and conveying device, having, in combination, a suction member adjustable in feeding direction for separating the rear of the topmost sheet from the pile, additional suction members between the sheet separating means and the front end of the pile, the additional members being adjustable in feeding direction and oscillatable for engaging the sheet from above and displacing it in feeding direction, driving means for the additional suction members, a hollow pedestal body adjustable in feeding direction and carrying the additional suction members and their driving parts, sheet separating means and driving means therefor, the sheet separating and driving means being arranged in the hollow body and remaining in unchanged and uninterrupted driving connection with the stationary driving means.

Miscellaneous:

1,995,130. PRINTING DEVICE. Worth G. Read, St. Paul, Minn. Application December 3, 1931. Serial No. 578,655. 3 Claims. (Cl. 101 — 377.)

3. In a printing press having a bed, a chase having rigid, spaced end members adapted to embrace opposite outer side edges of the bed, means for detachably connecting the chase to the bed, a multiplicity of type bars each having an end formed to detachably engage one of the end members of the chase and resilient means mounted on the other of the end members of the chase for removably engaging the adjacent ends of the bars.

1,996,176. SLITTING MACHINE. John Paul Smith, Chicago, Ill., assignor to Du Pont Cellophane Company, Inc., New York, N. Y., a corporation of Delaware. Application December 1, 1931. Serial No. 578,292. 6 Claims. (Cl. 164 — 39.)

1. A slitting machine comprising a supporting roll having a thin circumferential slot with a bevelled edge, and a knife mechanism for cooperation with the roll and slot comprising a non-rotary knife blade and an adjustable support therefor reciprocable toward and away from the roll.

1,997,111. SYSTEM OF STROBOSCOPIC RADIOGONIOMETRY. Rene Jean Hardy, Paris, France. Application November 30, 1931. Serial No. 578,192. In France December 4, 1930. 10 Claims. (Cl. 250 — 11.)

1. Radio direction finding apparatus, comprising two receiving frame aerials disposed at an angle to each other, means for tuning the aerials, substantially identical impedances, wound inversely with respect to each other, with which the tuning means for the respective aerials are connected, a tuned impedance inductively coupled in common to the first-mentioned impedances, a plurality of lamps, circuits for the lamps operatively associated with the common impedance, and means in each of the circuits for controlling the current flow through the lamps, whereby one of the lamps is energized only when no current passes through the common impedance, whereas the other lamp is energized when the current flow through the common impedance exceeds a predetermined value.

1,997,454. PRINTING. Salvatore J. Culotta, Chicago, Ill. Application January 27, 1934. Serial No. 708,620. 5 Claims. (Cl. 101 — 399.)

1. A type body including a printing face having formed thereon integrally with the body a combination printing character consisting of a quotation mark character and a punctuation mark character arranged below the quotation mark character and in vertical alignment therewith relative to the vertical axis of the type body so that when the combination character is printed the counterparts or inscriptions formed by its aforementioned constituents will be arranged in vertical alignment one above the other in the above-named order on the inscription-receiving member.

1,998,193. MACHINE FOR SURFACING PRINTING-FACED-EQUIPPED BODIES. Arthur H. Hedly, Chicago, Ill., assignor to Ludlow Typograph Company, Chicago, Ill., a corporation of Illinois. Application February 4, 1932. Serial No. 590,979. 1 Claim. (Cl. 90 — 16.)

In a machine for removing portions of the metal forming the printing faces of printing-face-equipped bodies to surface the printing faces, the combination of a holder element for the body to be operated on, an element for removing portions of the metal forming the printing faces, spaced apart parallel guide surfaces along which the holder element is reciprocable and at one of which the guide surfaces the holder element is hinged, the elements being so disposed that when the holder element is moved along the guide surfaces the second-referred-to element performs the metal removing operation, a bar having spaced apart cam surfaces extending downwardly from the upper surface therebetween, a member swingable on the holder element and adapted to travel along the cam surfaces and the upper surface of the bar intermediate thereof, stop means engageable by the member in the lengthwise movement of the holder element along the guide surfaces in one direction and operating to hold the member in a position in which the holder element is tilted away from the second-named element.

1,998,394. PAPER PASTING AND CUTTING DEVICE. Charles A. Golder, Bethel, Conn. Application June 23, 1932. Serial No. 618,963. 10 Claims. (Cl. 91 — 14.)

1. In a device, a paste-carrying roll, a vertically movable pressure roll adapted to press a web passing between the rolls against the first roll, thereby applying paste to one surface of the web, means to actuate the pressure roll out of such pressure relation, the pressure roll being movable by gravity into such pressure relation upon release of the means, cutting means bodily movable with the pressure roll, and resilient means urging the cutting means into cooperative cutting relation with the pressure roll.

1,998,630. PRINTING DEVICE. Edwin Kirk Large, Atlanta, Ga. Application January 24, 1934. Serial No. 708,119. 4 Claims. (Cl. 101 — 96.)

4. A printing device consisting of a plurality of revolubly mounted discs having printing type at their lower peripheries and having levers for setting the type in desired position, a spring-actuated pressure plate, means operable by a handle for releasing the plate against the positioned type, and a bar simultaneously operable by the handle to engage the discs to return them to original position, certain of the discs having portions cut away whereby engagement of the bar therewith on each operation of the handle is less than the engagement of the bar with the others of the disc.

Continued on page 84

Comparative Showing of Square Serif Type Faces

W. F. Schultz, a member of the Composing Room Section, International Educational Commission, of the International Association of Printing House Craftsmen, has prepared in booklet form a comparative showing of square serif types which also includes a section showing comparative lines of the Garamonds as made by the various type founders and matrix manufacturers.

About three years ago Mr. Schultz prepared a similar study of the minor differences of the sans serif types. Through publication of the booklet the Commission has enabled Craftsmen to identify the maker of any one of the versions shown.

The new booklet contains mostly lines of the 18-pt. size of Stymie, Tower, Beton, Girder, Cairo, Karnak and Memphis versions of square serif types. Of the comparative showings of Garamonds, the American Type Founders, Intertype Corporation, Lanston Monotype Machine Company, Ludlow Typograph Company and the Mergenthaler Linotype Company all are represented.

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Offset-Lith:

1,999,831. PHOTOCOMPOSING MACHINE. Edward Eugene Cooper and Albert Theodore Troedel, Port Melbourne, Victoria, Australia. Application April 3, 1934. Serial No. 718,772. In Australia April 7, 1933. 13 Claims. (Cl. 95 — 76.)

1. In a photocomposing machine, a body, transverse rails thereon, a carriage and a vertical holed plate at each side movable over the rails, rotary movement by the flanges on the car wheels passing over the rail, a horizontal plunger, a pair of contacts, means responsive to the vertical operation of the first plunger for operating the horizontal plunger, and means controlled by the horizontal plunger for closing the contacts, the rotary movement of the first plunger preventing excess wear in one spot on the plunger by the car wheels.

2,000,518. LITHOGRAPHIC PRINTING MACHINE. Albert J. Horton, White Plains, N. Y., assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York; Irving Trust Company, permanent trustee for said R. Hoe & Co., Inc. Application March 16, 1932. Serial No. 599,135. 4 Claims. (Cl. 101 — 148.)

1. In a dampening mechanism for a lithographic printing machine, a distributing roller and a fountain roller, both of the rollers being formed of rustless ferrous alloy and having their exterior surfaces grained to a mat finish.

Plate Making:

1,997,875. COMPOSITE MATRIX FOR PRINTING PLATES. Gunnar Rosenqvist, Oakmont, Pa. Application January 2, 1932. Serial No. 584,473. 4 Claims. (Cl. 154 — 46.5.)

1. A composite matric for making electrotype plates comprising alternate relatively thin layers of fibrous sheet material and plastic material assembled to constitute a unitary structure.

1,999,549. POLYCHROMATIC PRINTING PLATE. Serge Tchechonin, Paris, France, assignor to Samuel Heller, White Plains, N. Y. No drawing. Application May 7, 1932. Serial No. 609,994. In France April 15, 1932. 4 Claims. (Cl. 101 — 131.)

1. Colouring masses to be used for the manufacture of printing plates for polychromatic reproduction comprising approximately:

	Grams
Dextrin	10
Glycerin	10
Soap	10
Talc	10
Naphthalene	0.5
Water	16

Pigment sufficient amount.

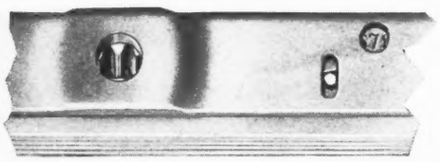
1,999,154. STEREOTYPE MATRIX MOLDING AND DRYING PRESS. William F. Huck, Richmond Hill, N. Y., assignor to Irving Trust Company, permanent trustee for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application June 7, 1933. Serial No. 674,648. 1 Claim. (Cl. 101 — 12.)

A pressure plate for a matrix drying press comprising a multiplicity of superimposed wire mesh sheets, a closure for the sheets including upper and lower wire mesh sheathing members adapted to completely surround the sheets, an extending flange forming the periphery of each sheathing member, the flanges having their inner faces abutting, and two reinforcing frames arranged over the flanges and adapted to be secured together to clamp the flanges therebetween.

Printing Presses:

2,000,273. SHEET PILING MECHANISM. William, F. Conklin, Tarentum, and Homer S. Hopkins and John M. Hover, Crafton, Pa.; Tarentum Savings and Trust Company, Mabel Conklin Voigt, and Catherine Conklin Cox administrators of said William F. Conklin, deceased. Application February 13, 1929. Serial Nol. 339,617. 15 Claims. (Cl. 271 — 68.)

STYLE H
PATENT NO. 1,948,821



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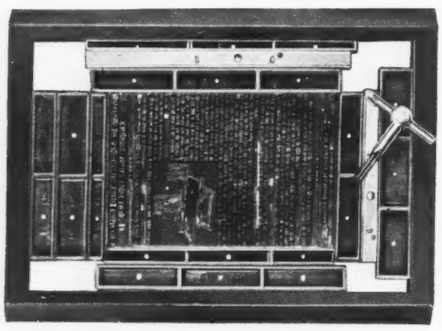

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1. In a rotary printing press, a form cylinder having printing surfaces located in different transverse vertical planes and an inking mechanism therefor including a plurality of sources of ink supply arranged in upper and lower transversely alined rows and means located at opposite sides of the press for independently regulating the amount of ink fed from each source of ink supply.

1,997,140. FEED ROLLER STARTER AND BRAKE FOR CYLINDER PRINTING TYPE PRESSES. George Mark Garfat, Hamilton, Ontario, Canada. Application September 14, 1934. Serial No. 744,051. 5 Claims. (Cl. 101 — 344.)

1. In a device, the combination of a bracket terminating in a block, the bracket also having a forwardly extending arm disposed below the block, a strip of leather secured to the upper end of the block, a rod slidably mounted in the aforesaid arm of the bracket and to which rod the lower end of the aforesaid strip of leather is secured, means for manually adjusting the rod to increase or decrease tension on the strip of leather, a metal plate on the underside of the leather strip opposite the face of the block, and means operatively engaging the metal plate to resiliently space same from the face of the block.

1,997,191. PRINTING DEVICE. Martin Hoag, Chicago, Ill., assignor to Pines Winterfront Company, Chicago, Ill., a corporation of Delaware. Application August 29, 1932. Serial No. 630,772. 22 Claims. (Cl. 101 — 250.)

1. A machine comprising a frame, an idle roller journalled on the frame, a guide frame pivoted to the main frame for horizontal alignment with the upper surface of the idle roller and for angular non-operative relation, a driving roller mounted in the main frame, and a type chase adapted to be guided horizontally through the rollers by the guide frame.

1,998,357 WEB CUTTING AND SCORING DEVICE. Martin Carlson, Chicago, Ill. Application April 7, 1933. Serial No. 664,988. 2 Claims. (Cl. 164 — 39.)

1. In a web cutting and scoring device, a frame, a supporting bar carried by the frame, a cutting knife having a shank, a fastening block having an opening for slidably receiving the supporting bar and an opening for slidably receiving the shank, the shank being arranged in contact with the bar, and a screw having threaded relation with the block and arranged in operative relation with the shank and the bar for pressing the two together, to clamp the shank and lock the block in position upon the bar.

1,999,109. PRINTING CYLINDER. Leslie Thomas Albert Robinson, London, England. Application March 6, 1931, Serial No. 520,631. Renewed May 1, 1933. In Great Britain October 15, 1930. 15 Claims. (Cl. 101 — 415.1.)

1. A printing cylinder divided longitudinally into two segments, with one of which a design sheet is designed to cooperate, means carried by one of the meeting faces of the segments to rigidly secure the ends of the design sheet thereto, and projections carried by such meeting face for distorting the plate to tension that surface thereof overlying the segment

12. A printing cylinder according to claim 1, wherein each end of the design sheet is provided with a metallic strip extending crosswise of the design sheet end and beyond the edges thereof, each of the strips having holes therethrough to engage pins or flanged holes in the design sheet ends so as to fix the design sheet in position, the strips being arranged or disposed in recesses in one separating face of the cylinder segment.

1,999,472. WEB-FED PRINTING MACHINE. Ernest George Nixon, London, England. Application May 17, 1933. Serial No. 671,503. In Great Britain October 1, 1932. 16 Claims. (Cl. 101 — 212.)

1 A printing machine adapted to print and/or perfect an intermittently fed web, including a printing couple comprising a stationary impression bed to support the web during printing, at least one rotary cylinder adapted to carry a printing plate extending around not more than one-half of its circumference, means for reciprocating the cylinder longitudinally of the web, and associated means for rotating the cylinder in one direction only so that the printing plate contacts at predetermined intervals with the web.

1,999,550. PRINTING MACHINE. Serge Tchechonin, Paris, France, assignor to Samue Heller, White Plains, N. Y. Application April 5, 1933. Serial No. 664,649. In France February 23, 1933. 13 Claims. (Cl. 101 — 176.)

1. A printing machine for polychromatic reproduction by means of a single printing plate consisting of a number of colouring masses, comprising at least one stationary shaft, at least one main rotary roller carrying the printing plate, and supported by the shaft, a movable shaft adapted to freely move in a vertical direction and preferably situated below the main roller, another roller mounted on the movable shaft, a number of guiding rollers disposed on both sides of the main roller and flexible endless means passing on the guiding rollers, surrounding the main roller and always stretched and tensioned by the mobable roller, the flexible means being adapted to apply the material to be printed upon against the printing plate always with the same pressure whatever be the degree of wear and the variations of thickness of the printing plate.

1,999,733. PRINTING BLANKET. Hans J. Luebrs, Westerly, R. I. Application August 16, 1933. Serial No. 685,325. 6 Claims. (Cl. 154 — 54.5.)

1. A printing blanket comprising an outer thin flexible steel sheet impression member and a resilient compressible supporting member therefore, the latter having its meeting edge portions of greater compressibility than its central portion.

1,999,776. PRINTING MACHINE. Ian Theodore Nelson, Edinburgh, Scotland. Application August 17, 1934. Serial No. 740,334. In Great Britain July 19, 1934. 3 Claims. (Cl. 101 — 383.)

1. In a printing machine, the combination of a surface presenting guideways and adapted for the reception of series of printing plates deposited on the surface in parallel rows transverse to the guideways, parallel series of plate-engraving clamps interposed between adjacent rows of plates, the clamps being guided in the guideways for adjustment transversely of the rows of plates, individually adjustable struts interposed between adjacent series of clamps, each of the struts comprising a screw-threaded spindle, a collar unitary with the spindle presenting sockets engageable by a tommy bar to effect rotation of the spindle, and a nut engaging the spindle, the collar and nut constituting clamp-engaging abutments, screw spindles arranged beneath the clamps and extending longitudinally of the surface, and transverse pressure plate sections having nuts engaged by the screw spindles, the screw spindles and pressure plate sections serving as means for transmitting pressure through an entire series of plates and their clamps in any given guideway, whereby simultaneously to lock the plates to the surface.

2,000,253. WEB RENEWING MECHANISM. Charles J. Richter, Berwyn, Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois. Application October 30, 1931. Serial No. 572,064. 26 Claims. (Cl. 242 — 58.)

6. Web renewing mechanism including in combination a support for a plurality of web rolls, one an active web roll and another a reserve web roll, means for moving the running web into contact with the reserve web roll, an adhesive applying roller and weighted means for pressing the adhesive-applying roller against the reserve roll.

2,000,439. WEB RENEWING MECHANISM. Harland Fankboner, Chicago. Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois. Application October 15, 1931. Serial No. 659,002. 22 Claims. (Cl. 242 — 58.)

2. Web renewing mechanism including in combination a support for an active and a reserve web roll, means for moving the reserve web roll from pasting to running position, means for contacting the running web with the reserve web roll, and means for applying an adhesive coated sheet to one of the moving webs to joint it to the other.

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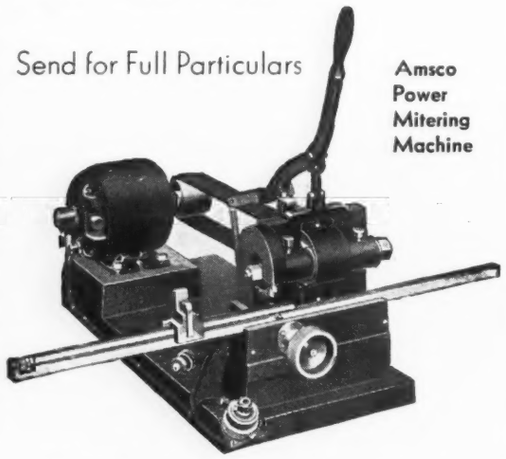

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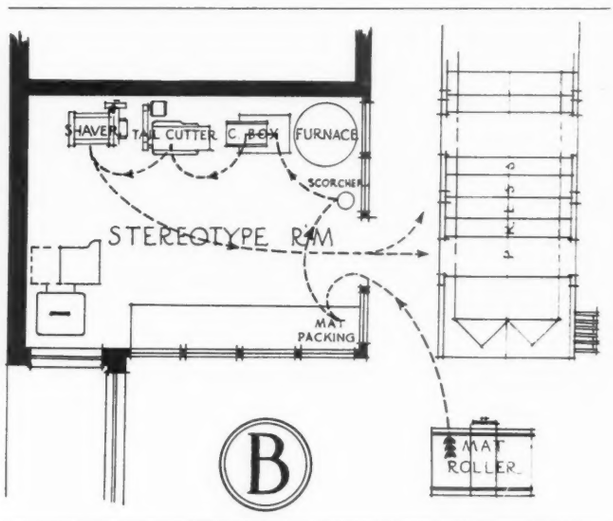
Sense

(Continued from page 68)

newsprint and ink, the melting of metal, casting of composition material, etc., are a few that may be described as supporting operations whose interest should, where advisable, be subordinated to the main operation. Lack of proper sense of relative importance led a composing room superintendent to insist on a location for the metal and material casting room that was detrimental to the flow of work through that department, simply because the location selected was one of greater convenience to the boy who distributed the material to the cases and the pigs to the typesetting machines. He was a true Missourian, however, and, when shown, saw the point.

Another example of justifiable deviation from the straight line is shown by the accompanying diagrams. Plan "B" is the publisher's suggestion based on his criticism that in "A" we break our straight line by jumping with our mats to the far end of the stereotype room. This man was too alert not to see that it was bet-



ter to carry a paper mat twenty feet and deliver a finished plate at the side of the press than to more nearly approach a straight line and carry 80 lbs. of metal the same distance the paper mat was carried.

It might be possible to evolve an impressive looking formula based on weight-times-distance, with some sort of a time coefficient, that could be applied slide-rule fashion to such problems, but practically it would be a pretty poor substitute for good horse sense and a well-developed appreciation of relative values. Don't hesitate to bend the line when operations will profit thereby. Such a line, after all, may look a lot more nearly straight on the ledger than one that is kept straight in the plant. Be sure, however, that you have a good reason before you bend it. You will have to be your own judge as to the soundness of your reasoning.

Not long ago we were in a stereotype room of a small newspaper. The direction, or rather directions, in which the work moved defied our attempts to figure it out. When we called for help we were told that the man who operated the room was left-handed. That seemed to satisfy the publisher, so we were satisfied. It looks, however, like this man will have to stick to left-handed stereotypers for life.

Pressman

Must Learn Rubber Technique

By W. J. Ruscoe*

There are many present who have had a broad experience with rubber printing plates and others whose experience has been limited, but regardless of the degree of experience each of us, no doubt, has formed an opinion. Some of these opinions, undoubtedly, are based on facts, others may not be, because we are all prone to overlook the truth that an opinion is not necessarily a fact. I simply mention this because we are all more or less inclined to overlook facts when we have a set opinion. Therefore, let us keep this firmly in mind as we progress.

I want to make clear that the rubber printing plate is not perfect. We are aware of the problems that still demand solution, and are striving for an answer to these problems. We are cognizant of the present limitations and advocate that same recognition by our customers in your industry. On the other hand, it has now reached a degree of perfection that makes it a practicable process and is being accepted as such by the printing industry.

The development of rubber for specific uses in the printing industry has been active almost as far back as the discovery of vulcanization by Charles Goodyear. In its path have been problems that have at times appeared incapable of solution, but perseverance on the part of those interested has made some of these problems today a matter of historical interest only. From this development various types of products have emerged that are serving the printing industry in a way impossible to obtain with any other present material. These include several types of rollers, blankets and printing plates, each having a long, interesting development history impossible to present in the time alloted for this paper. Its scope is, therefore, limited to the latter group.

ENGRAVED PLATES

The engraved plate is possibly the oldest application of rubber as a printing medium. The first were cut in a crude manner from rubber packing or sheeting and were used successfully by the cloth bag industry. Eventually special constructions of rubber and fabric were made that acquired the title "Engraving Gum." The box and container fields were then found to be vulnerable spots and the engraved

*Technical Representative, B. F. Goodrich Company, Akron, O. Discussion by H. W. Haydock, President, Royal Electrotype Company, Philadelphia. Paper presented at the Fifth Conference of A. S. M. E. Printing Industries Division, October 8 and 9, 1934, Philadelphia, Pa.

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plate gradually progressed to metal signs, posters, and in a limited way, the finer printing field.

Today there are numerous types of engraving gums, ranging from 3/32 to ⅜ in. thick, with fabric or metal backing. The face or printing surface is obtainable in various degrees of hardness, from a hard, rigid to a soft, resilient rubber. One or two fabric inserts are imbedded in the construction between special fillers and serve as stripping levels for the engraver.

The engraved plate is made by first sketching the design thereon, or transferring from a line drawing to the engraving surface. The design is then cut to the level of the fabric insert and the non-printing areas are removed by stripping to this fabric.

Through the progressive stages of printing with engraved rubber plates, many complicated rubber and fabric constructions have been produced to conform to ideas of numerous printers and engravers. These have led to confusion between the rubber manufacturer and the users of these plates regarding the better type of construction, and reasons for its particular structure. It has burdened the rubber manufacturer with numerous specifications constructed around ideas that have given little thought to the advantages to be gained by standardized conditions of manufacture.

A scientific study has been made recently of these numerous constructions and their application in effort to produce a standard, improved design that would lend itself to better control of processing and printing life. In this construction are rubbers and fabrics arranged in a manner that affords resiliency that heretofore has been lacking in engraving gums. This should be a large factor in furthering the life of engraved plates.

The engraving gum is vulcanized by the rubber manufacturer and requires no further treatment in this manner by the engraver.

MOLDED PRINTING PLATE

Pioneer work on molded rubber plates started with the ordinary hand stamp years ago. The procedure consisted of imprinting the type design of metal or work into a plastic mass of clay, plaster of paris, and dextrine. This imprinted form was then dried and baked until sufficiently hard to serve as a matrix or mold in which to vulcanize rubber under pressure. This method was then extended to the manufacture of box dies that are used for printing cardboard, metal and wood containers, paper and cloth bags.

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MATRIX DEVELOPMENT

Attempts to perfect the clay type molds produced some improvement and some plates for letterpress printing have been produced from them. Papier-mache is probably the more practicable of the plaster type molds but had limitations that restricted its adoption.

Soft metals such as lead and its kindred alloys were tried, and are being used today with some success.

After considerable investigation of synthetic resins, one of the phenol-formaldehyde group was found to possess the characteristics necessary. The perfection of this type of matrix has removed one of the larger obstacles in the path of this development.

This material is now available to the present and future manufacture of rubber printing plates. It is a plastic that is thermo-setting under heat and pressure, and will reproduce perfectly foundry or machine cast type, electrotypes, original zinc, copper or brass photo-engravings and brass dies.

RUBBER DEVELOPMENT

Naturally, through these progressive stages, the rubber manufacturer was being called upon to assist in the problems confronting the platemaker and the printer. Early progress in rubber development was retarded by the limited knowledge of rubber compounding. As this knowledge increased the quality of rubber products increased in proportion, including those that apply to the printing industry.

The rubber that goes into the printing plate, either engraved or molded, is the result of years of research, involving long series of costly tests. It has been necessary to study the effects of various types of inks on numerous rubber compounds. It has been necessary to study the cause or failure in the field and to construct in the laboratory a method of test that would approximate field conditions as closely as possible.

Under this program rubbers have been developed that with intelligent handling by the platemaker and printer will give satisfactory performance with respect to long life. We have not reached the ideal in this direction for three major reasons:

1. Rubber compounds have been developed to resist to a marked degree oils, abrasion and oxidation. There is, however, room for improvement.
2. Present inks with the exception of the aniline and water type are injurious to rubber plates.
3. Conditions in the print shop with respect to equipment and technique in handling rubber plates will have to be improved.

To clarify these conditions we shall deal with each in detail.

The first requisite of a rubber for printing is maximum oil resistance. It is well known that crude rubber will absorb, swell, and finally disperse in certain organic solvents, particularly the aromatic (coal tar) and straight chain (petroleum) hydrocarbons. This condition is modified by compounding and vulcanization.

The second, and no less important requisite, is resistance to age or oxidation. Here again, is a natural property that we attempt to overcome but at best is only a delaying of the action. The prevention of oxidation in printing rubbers is not so important from a storage angle as a protection from the oxygen carrying driers used in inks. The chemistry of oxidation and its prevention by so-called anti-oxidants is one of the problems of long standing in the rubber industry. There are several theories on the subject but each may be termed a speculation because none of them are satisfactory explanations. Considerable progress has been made in the past few years to prevent the oxidation of rubber compounds. The future will, undoubtedly, bring new developments.

The third requisite is resistance to abrasion. The type of

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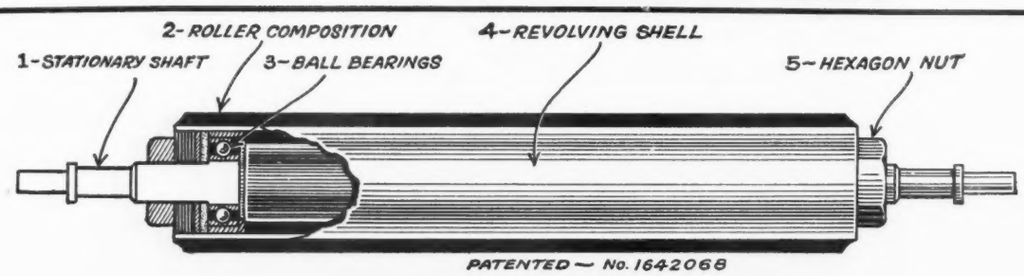

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wear on printing rubber is quite different from that associated with tires. Frictional wear is greatly reduced by lubrication from inks but abrasion is present in more or less degree and must be taken into consideration.

The fourth requisite is ability to withstand series of shocks or compression without building up internal heat. Constant or repeated impressions on the printing press massage the entire volume of rubber and the building up of heat to any large degree is detrimental to long service.

The fifth, sixth and seventh requisites are properties that are important to the platemaker. These are ability to mold or take the form of the original with the least amount of difficulty, ability to remain stable in the unvulcanized condition over a long period of time, and compatibility with other stocks with which it is used.

These properties are provided in more or less degree by proper compounding. The art of compounding has developed, within a relatively short space of years, from a rule of thumb method, to such an extent that today technical men are trained in the science of compounding.

To aid the compounder in his work of improving present stocks and solving problems pertaining to rubber applications, extensive control and research laboratories have been established. In these laboratories men are occupied with the routine work of testing crude rubbers, accelerators, pigments, etc., and other are constantly occupied with problems that are purely research.

Rubber belongs to one of those complex systems of matter known as colloids, of which we have a limited knowledge. In fact, it has been only within a relatively short time than any concentrated effort has been made to improve this knowledge. Therefore, it is reasonable to believe that, after we have a better understanding of the chemistry of rubber from the latex to the cured form, we will be able to accomplish still greater results in this and other fields.

Materials for compounding consist of accelerators, antioxidants, organic and inorganic fillers and oils. The physical characteristics of the uncured and cured compound are changed by varying the rubber content and these compounding materials. The compounder has a wide experience and knowledge of the various rubbers and compounding materials, and has a clear understanding as to what may be accomplished with each one.

In the past few years synthetic rubbers (correctly resins) have been appearing on the market. These are Thiokol, an ethylene-polysulphide reaction product; and DuPrene, a polychloroprene product of the reaction of polymerized acetylene and hydrochloric acid. These two products are much more resistant to oils than natural rubber, and while they have not yet found a place in the printing field, they are being tried experimentally and may aid in solving this part of the process.

These synthetic products are similar to natural rubber in many respects. They are compounded, mixed and cured in much the same manner, and are resilient and pliable in the cured form. While they lack some of the properties of natural rubber, such as low permanent set and being less adaptable to variable requirements of service, they do possess a characteristic property of resisting oil to a much greater degree than rubber.

RUBBER PLATE TESTING METHODS

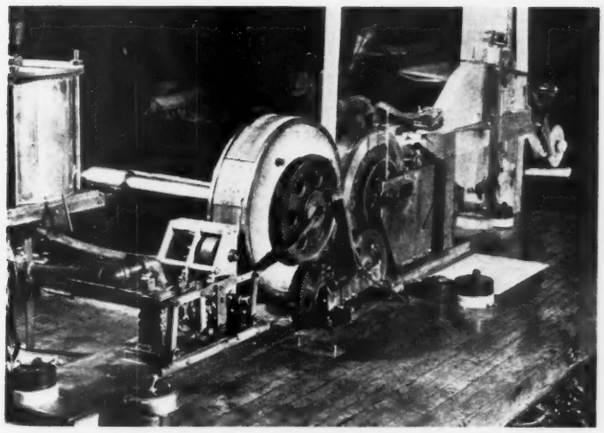
Field tests were found unreliable due to the large number of uncontrollable variables. To be able to arrive at definite conclusions in compounding for printing rubbers, it has been necessary to devise a method of test that would permit comparable results. A machine was constructed that is essentially a miniature printing machine, in which the pertinent factors of failure are exaggerated to accelerate the test. These factors include adjustable slip, which may be

varied from zero to any of several values, control of pressure on the test plate, controlled temperature on the plate for the duration of the test and the use of inks of known composition. This has insured consistent test conditions as near as they can be controlled.

THE INK PROBLEM

The second condition to which we might look for improvement is the ink field. Alert ink manufacturers have considered this problem and are beginning to take steps to develop inks that will be less harmful to rubber plates.

The development of the present inks has hinged almost entirely around metal plates, and recent years have seen



This machine is used in testing Goodrich Elastotypes under actual printing conditions. To be able to arrive at definite conclusions in compounding for printing rubbers this machine indicates the quality of the plates put into it for testing purposes.

many rapid changes in the technology of manufacture. This has been brought about by new types of printing presses, higher speed presses, new and better printing surfaces, new raw materials and numerous other factors. To keep pace with the speed that was required, it was necessary to produce inks that would, in addition to printing qualities, dry almost as soon as they touched the paper.

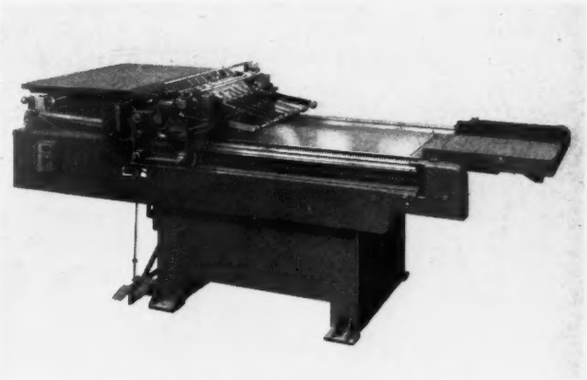
These conditions and resulting developments in ink required changes in compounds if the rubber plate was to survive. Gradually, better rubbers were produced and the condition was relieved considerably. Today it is possible to use a variety of oil vehicle inks in conjunction with rubber plates provided care is used in the operation. There is, however, that element of danger that can and will be eventually removed.

The objects of concern are, of course, vehicles and driers. Present vehicles consist of various types of mineral, vegetable, and animal oils, all of which affect cured rubber to more or less extent. This condition is further aggravated by the bodying and boiling operations to produce the varnishes. There is a difference of opinion with respect to the effect produced by driers and attempts are being made to obtain a clearer understanding of this angle.

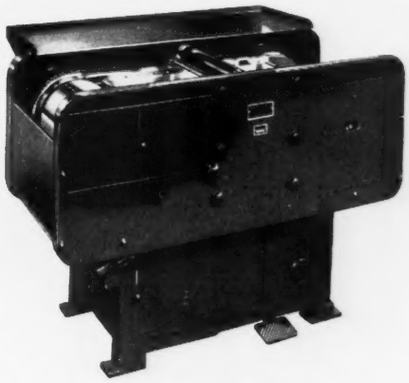
VEHICLES AND DRIERS IN INK MANUFACTURE

There is much to be learned about vehicles and driers in ink manufacture and the future will bring out improved and new materials which will, no doubt, be helpful to the rubber plate. Linseed oil is the vehicle of long standing and has certain limitations, having no direct bearing on rubber plates, that have led investigators to search for other materials. The development of nitro-cellulose lacquers by the paint and varnish industry with its resulting improvement is possibly an indication of what might be accomplished in the ink industry with synthetic solvents and resins.

Don't WAIT For PROOFS



No. 325-A Vandercook Proof Press



No. 23 Electric Proof Press

High-speed presses, the latest in type-setting machines, and up-to-the-minute foundry equipment is wasted—if you or your customers must wait for proofs.

Minutes are vital to fast-moving newspapers. Your proofing department IS important. It deserves careful consideration. A comparison of your present production with the performance of No. 325 A and No. 23 Vandercook Proof Presses will be a revelation to you.

1000 Page Proofs per Hour is easy when you have No. 325 A Vandercook Proof Press in your composing room. Whether your advertiser wants six or a hundred proofs you can give them easily, economically and quickly. Superior proofs mean fewer errors and revises—with consequent better feeling from your advertisers.

40 Good Proofs per Minute, or more at the demand of the operator, can be printed on the No. 23 Vandercook Electric Proof Press. Six full columns or a one inch, single column ad print equally well.

Special Vandercook impression cylinder, perfected rubber rollers, and thorough ink distribution, insure excellent proofs from forms and galleys carrying type and cuts that vary as much as .015" in height.

The new No. 23 Vandercook Electric Proof Press has proved its efficiency in leading plants throughout the country. It is essential where high-speed is demanded.

Efficient production executives must be informed. A request for information implies no obligation. Write, or mail the convenient coupon below.

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Please send complete information on No. 325-A and No. 23 Vandercook Proof Presses.

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All

Mechanical Superintendents

Know:

That composing room complaints of broken rules and damaged type in the Stereotype Room are caused by excessive pressure in molding dry mats.

We *know* and want all interested to prove to their own satisfaction that this *expense* and *trouble* can be eliminated by equipping your Stereotype Department with the **FRANKLIN APEX COMBINATION MOLDING BLANKET** which molds dry mats perfectly with less *pressure* than regular cork molders and also eliminates the use of felt and creeper blanket.

FRANKLIN APEX COMBINATION MOLDER (one blanket) does the work of three more efficiently, saves time, type and money. Order one for each of your molding rollers.

Prices as follows:

20 x 24 — $5.00 each; 4 for $18.00
21 x 26 — $5.50 each; 4 for $20.00

You cannot lose by giving this blanket a trial, since we guarantee: "*Money refunded if not satisfied.*"

One man expressed his satisfaction, saying, "With the use of your **COMBINATION MOLDER** our plates stand out like real electrotypes"— and another, "We have practically no complaints from composing room because of damaged type."

Manufactured and Distributed by

RUSSELL PRODUCTS COMPANY

810 SANSOM STREET PHILADELPHIA, PENNA.

Investigation is being conducted along two lines. One, to perfect present vehicles, and the other, searching for new synthetic materials for both vehicles and driers. The possibilities are unlimited and the results can only be conjectured.

Information on rubber printing plate inks at the present time is quite limited. Experiments and tests are being made continually by the rubber and ink manufacturer to determine the best present types of ink for specific jobs when using rubber plates. The consensus leans toward inks that contain thin-bodied lithographic varnishes or plate oils and a mixture of lead and cobalt driers in thin oil or varnish.

Much better results would be obtained in the use of rubber plates if the printer would consult the ink manufacturer with his problems, especially if he finds it necessary to change the consistency of ink. Numerous rubber plates have been unnecessarily destroyed by print shop "doctoring" of inks.

IMPROVEMENT OF TECHNIQUE AND EQUIPMENT IN PRINTING PLANT

The third condition, that of improved technique and equipment in the print shop, will also aid considerably to further the success of the process.

Present press equipment is being used successfully, but finer adjustments and more suitable mounting conditions effect a marked improvement in printing and life of the plate. Some locations, where rubber plates have proven their advantage over metal plates, are building new presses or remodeling their present equipment.

The pressman has acquired a technique of printing with metal plates that is sometimes difficult to change when he uses rubber. He will have to learn that the required pressure is just enough to "lay" the ink. He has to learn a new angle of make-ready, to use discretion in "doctoring" ink, and proper methods of cleaning the rubber. He is quite familiar with the weakness of metal plates and treats them accordingly. Eventually he will have the same knowledge of rubber and will be able to improve his technique with these plates.

It is not too much to expect an almost complete solution of each of the three conditions outlined, and while they may appear to be a tremendous handicap to the rubber process, they are not as serious as may first be supposed. They are conditions which, if solved, will place the rubber plate in a position of still greater importance.

RUBBER HALFTONE PLATE PRINTING

Another major problem in rubber plates today is that of printing halftones on a commercial scale. Good results are being obtained in some locations on the coarser screens, and in a few cases a fair result has been obtained in 133-line screen. Work of this type requires almost perfect printing conditions as the slightest excess pressure will produce a gray cast over that portion. Unfortunately the resiliency of the rubber, which is one of the chief advantages of the plate, is a disadvantage in the printing of halftones. It is a relatively simple matter to produce a rubber of a hard nature that will produce satisfactory results, but in doing so, it is necessary to sacrifice the resiliency that is so desirable. It has been the object of the development to accomplish satisfactory results without sacrificing this quality. At the present writing experiments are very encouraging, and a solution of this problem can be expected in the near future.

EQUIPMENT FOR MANUFACTURE OF RUBBER PLATES

The manufacture of the rubber plate is not a complicated process and the investment in equipment is small.

The technique of the entire process is not difficult and can be acquired by one of average intelligence after a period of instruction.

Brushes

If Watched, Will Save Trouble

By L. L. STOFFEL*

PARADOXICALLY enough, the troubles which occur from time to time on the brushes of electric motors are in one way a positive advantage; for in most cases these annoying incidents give warning—often long in advance—of deeper-seated troubles in other parts of the machines. By watching brush behavior closely and systematically many a profit-wasting shutdown can be avoided; and after all, it is always preferable for the printing plant executive, instead of the motor itself, to decide when it is to be sent to the repair shop.

Obviously it is impossible to give within the space of a brief article all the possible meanings of brush trouble. Only those types of motors generally met with, and the troubles most likely to turn up, are indicated. But if the following hints save an undesired and inconvenient breakdown they will have served their purpose.

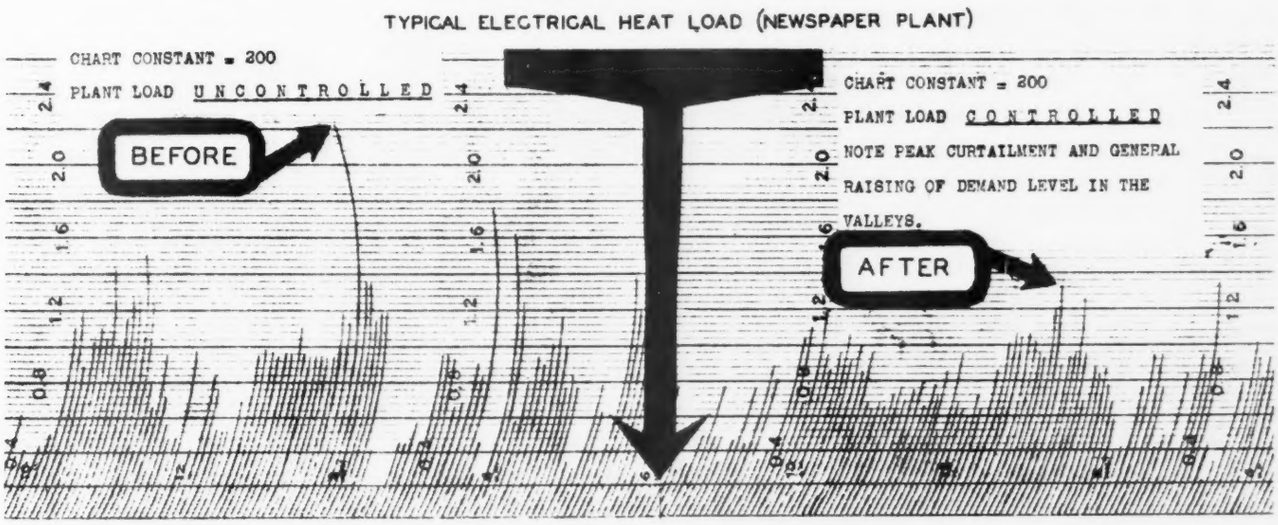
Periodical, systematic inspection, with written notes on the state of each motor, form the only way to trace properly the beginnings of trouble. There is usually plenty of warning before the final collapse of the machine.

When a brush starts to spark examine the brush itself and its immediate surroundings. Are the brushes bedding properly on the commutator or slip-rings? Unless the contact is perfect all over, the brush naturally cannot function properly. If the brush has been replaced recently, are you sure that the right kind of brush has been used? There are hundreds of possible combinations of resistance, hardness, abrasiveness, contact drop qualities, and grades of material. These brush properties are really a part of the design of the machine. Even a much more costly brush may be less suitable than that recommended by the makers of the motor. And it by no means follows that because a brush happens to fit the brush-holder it will function correctly. If sparking persists after checking up the above, see if the brush is worn down too far for the tension spring to keep it in proper contact. Brushes which are too short (especially if they are also somewhat too loose in the "box" of the holders) are also apt to chatter and spark. In extreme cases they may even break or slip from under the "box-holder"—generally with disastrous results to the motor itself. Next—is the brush free, but not too free, to feed forward in its holder? "Stuck" brushes are a frequent cause of sparking, and of ultimate destructiveness to the surface on which they run. Dirt, corrosion due to chemical fumes, and brushes having sides which are not parallel, are the principal causes of the jamming of brushes. The last-named cause does not, of course, occur when regularly manufactured brushes are used. It generally happens when somebody has forgotten to keep spare brushes in stock, and the maintenance man is compelled to make up a brush in a hurry on the job, with a hacksaw and a file. Next try adjusting the tension spring on the hammer which presses the brush against the commutator or ring. If the pressure is insufficient, the brush will spark and chatter. If too much pressure is used, the sparking may decrease, but the brush will become hot and wear quickly. Where the motor is exposed to much dirt or corrosion, it may not be

Vice-President, The Ohio Carbon Company, Cleveland, Ohio.

PROOF

OF POWER SAVINGS IN NEWSPAPER PLANTS THROUGH—


TYPICAL ELECTRICAL HEAT LOAD (NEWSPAPER PLANT)
CHART CONSTANT = 300
PLANT LOAD UNCONTROLLED
BEFORE
CHART CONSTANT = 300
PLANT LOAD CONTROLLED
NOTE PEAK CURTAILMENT AND GENERAL RAISING OF DEMAND LEVEL IN THE VALLEYS.
AFTER

DEMAND CONTROL

The above chart which is a typical newspaper plant load chart shows positive proof of the economies in Demand billing that are being accomplished through the use of the Watts Demand Controller.

You can, in all probability, save from 10 to 20% on your monthly power bills with a Demand Controller that is adapted to your plant.

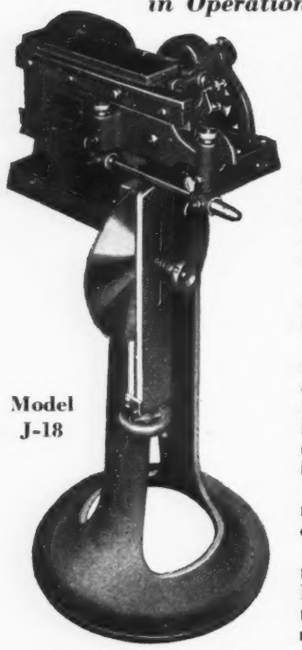
Upon indication of your interest, one of our engineers will be glad to present a definite proposal on a basis of guaranteed results.

WATTS ELECTRIC CONTROLS INC.
671 BROAD STREET NEWARK, N. J.

Turn to the article on page 25 which explains Power Control.

The WARDWELL New Automatic Heavy-Duty Saw Filer and Jointer

Dependable Performance — Economical in Operation — Long Life



Model J-18

This precision Filer automatically files and joints circular saws up to 18 inches in diameter and band saws of any width and with spacing of teeth up to ½-inch from point to point.

Every tooth is filed to the exact same size, height and spacing, which means that the saw will stay sharp longer, cut faster and produce better quality of work.

Construction of this machine is unequalled — it is designed for long, continuous use.

The vertical and filing arm slides work in dovetail ways and are gibbed for adjustment to take up wear. The file is held below the slide and to one side, so that the filings cannot enter into any of the working parts.

The file is quickly adjusted by means of thumb screws on top of the file holders.

The motor is direct connected through a universal coupling. Reduction of speed is obtained through worm and gear, which runs in heavy oil.

Thirty-day Free Trial. Write for Full Information

THE WARDWELL MFG. CO.

Makers of the Largest Line of Saw Filing Machines in U. S.

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possible to cure the sparking entirely by the above methods, or by those detailed below. In such case, it may be well to get in touch with the makers of the motor (or with a brush manufacturer) as to using a type of brush with greater abrasiveness so as to keep the metal-collecting surface clean. Such changes should not be made haphazard. Moreover, the new brushes should not be tested by running them together with the old brushes; for if the resistances of the two sets are different one set may "hog" the load, thus making the "test" worse than useless. Next, check up the pigtail connections which furnish a path for the current from holder to brush in most motors. Are they unbroken? Are they properly secured to the brush and to the holder? If not, the current must pass through the hammer and tension spring, and through the sliding contact between brush and metal holder surface. "Pitting," burning and arcking will then make short work of these parts. Are the connections between brush spindles and cables tight? If not, one or more sets of brushes will have to carry more than their share of current, and will almost certainly spark excessively. The trouble will be on the set which does *not* spark, of course. Are the brush spindles loose in their bushings? Are they parallel with the commutator or ring surface? Are they also parallel with the slots in the commutator (if the machine is of the commutator type)? Are the brushes properly spaced around the commutator or rings? This is much more important in the case of a commutator machine than in one with slip rings. If the brush rocker is adjustable, does it hold the brush system as a whole in its right position as to the proper collecting points? Modern interpole machines are extremely sensitive to wrong position of even single brushes. Is the brush rocker clamped tight so that it cannot shift around?

Does the sparking still persist? If the machinery driven by the motor has recently been re-arranged or added to, test

CURLE METAL CATCHERS

A positive method of control and disposition of all metal trimmings, waste and dross from Linotype and Intertype machines

TRIED AND PROVEN

Introducing a new and practical device for disposition of all metal trimmings from Linotype or Intertype machines by directing such waste to a convenient receptacle for disposition, eliminating all accumulations on the floor and machine frame. Minneapolis Tribune battery of 30 linotypes fully equipped, also many other plants.

WHICH

KEEPS FLOOR CLEAN
because waste metal and trimmings are collected in convenient container.

KEEPS METAL CLEAN
because dirt and foreign matter are prevented from getting into metal supply.

KEEPS MACHINE CLEAN
because waste metal is not permitted to gather on frame.

SAVES TIME AND LABOR
because the drudgery of shoveling and collecting metal in truck are eliminated.

SAVES MATRICES AND SPACEBANDS
because operator can easily find same when dropped, preventing their destruction in metal furnace.

SAVES METAL
because the usual loss in sweepings are eliminated.

PROTECTS OPERATOR'S HEALTH
because he does not breathe in metal laden dust which is largely responsible for lead poison.

PROTECTS MACHINE PARTS
because trimmings are not permitted to gather and disturb machine operation.

PROTECTS AGAINST CONTINUAL LOSS OF SORTS
because dropped matrices and spacebands are immediately returned to machine.

Write for Information Regarding Manufacturing and Distribution Rights

GEO. L. CURLE, 43rd STREET and ZENITH AVE., SO. MINNEAPOLIS, MINNESOTA ***Head Machinist, Minneapolis Tribune, Patentor***

the load. *Test*—don't guess. If this is the trouble, the motor armature will be hot all over, concurrently with the sparking. Test for the temperature rise above that of the surrounding air. Most motors are rated to operate on full load with a rise of 50 deg. C., though some are rated for 40 deg. only. Pack the thermometer directly in contact with the overheated part, covering it with tightly packed rags, so that the cooling effect of the surrounding air will not falsify the reading. Allow a few minutes for the thermometer to reach its maximum reading. If no thermometer is handy, and you use the rough test of noting if the armature is too hot to bear the hand for a few seconds, remember to feel the windings—not the metal. Metal always feels much hotter than it actually is. If the load, as measured, is not excessive, yet the motor armature still heats badly, look for troubles in the motor itself. Bearings may be too tight or may need oil, or the oil-rings may not be working. Dirt may be wedged in the housing, between the poles, or in the air-gap.

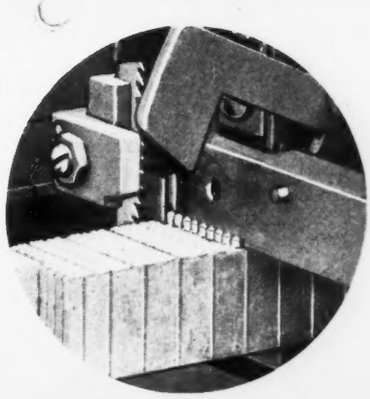
Does the commutator or ring look burned in places? See if the brushes rise and fall slightly when the armature is rotated slowly. The commutator or ring may be out-of-round. Are any of them wearing down faster than others? Are the mica insulation divisions between the commutator bars projecting slightly above the metal? If the mica has been undercut below the level of the bars to avoid this trouble, have the slots become filled with dirt, dust or oil? Is the metal of the rings softer in some parts than in others? Are rings or commutator gummy or dirty?

Intensified sparking and flashing, combined with only part of the armature getting hot, suggest a short-circuited coil in the winding. The same symptoms, but with all parts of the armature equally hot, suggest unequal air-gaps between poles and armature; or between stator and rotor in an alternating current machine. In both types of motor the current will rise, and in an alternating current induction motor, this current will be unequal in the different phase windings. The usual cause of the trouble is, of course, worn bearings, but another cause may be that the poles were originally adjusted to final air-gap accuracy by means of thin shims placed at the back of the poles, and that in reassembling, these have been omitted or have slipped out when bolting the poles in place.

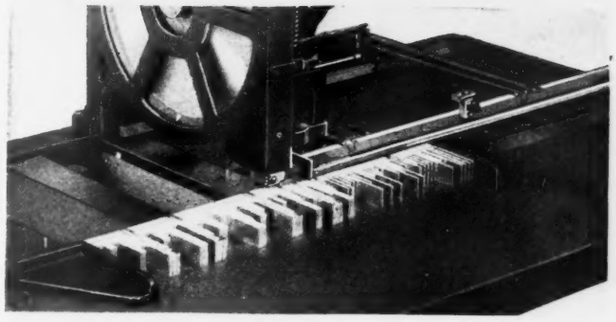
Bad contacts or broken wires between coils and commutator show up by violent flashing at the broken points (often becoming a ring of flame around the commutator) though there may be little heating in the winding in general.

If the speed of a direct-current motor is too high on no load, and the machine also refuses to start under load and blows its fuse, a weak field is indicated. If recently dissembled, there may be a reversed field connection, a partial short-circuit in one or more field coils, or trouble in the starter. In an alternating current induction motor, look for a short-circuit or a break in one of the phase windings of the rotor or stator. In an induction motor, however, the no-load speed will not be too high (wound rotor type motor). Before checking the phase windings, see if one fuse is blown. A blown fuse may allow an already-started polyphase motor to continue to run on the other phases, but at a high current. Note that if one field in a direct-current motor be short-circuited, the resultant electrical unbalance will cause sparking on the set of brushes under its influence.

Sparking troubles due to grounds are not included, mainly because the only way to detect them far enough ahead is by proper measuring instruments in the hands of a skilled repairman. Also, when a ground has progressed to the stage where it is obvious to ordinary inspection it is generally too late to do much about it.



The SECRET of High-Speed Sawing



Cuts a full galley of slugs in 35 seconds

Hundreds of Rouse Band Saw users know this secret. The little projections on the slugs illustrated in the circle are the wonder-workers. They indicate the lengths of the slugs to be sawed, and hold slugs in proper alignment as they are fed automatically through the saw.

No measuring a few slugs at a time. No risk. No tedious setting of gauges. The slugs are simply pushed off the galley to the bed of the saw. A single motion of the aligning bar carries the slugs to their position for sawing. The saw is started, and in 35 seconds an entire galley is automatically sawed to the variable lengths, ready for makeup.

No complicated attachment is necessary for the slug casting machine. A patented Rouse vise jaw affords the means of casting the aligning projections. This is interchangeable with the regular Linotype or Intertype vise jaw and can be attached in a few minutes. No machine changes are necessary.

Where speed is important the Rouse Band Saw is essential. Complete description and list of users will be sent at your request. The coupon below is for your convenience, or write on your letterhead—NOW.

ROUSE BAND SAW

H. B. ROUSE & COMPANY

2216 Ward Street, Chicago, Illinois

Please send complete information on the Rouse Band Saw as advertised in June P. E. E.

Name.....

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A.C. vs. D.C.

Drives for Newspaper Printing Presses

By H. F. BLANKENBILLER*

Supplement to article in PRINTING EQUIPMENT Engineer, *March, 1935.*

IN THE March, 1935, issue there appeared an article on the subject of a.c. vs. d.c. drives for newspaper printing presses. The article was written for the purpose of acquainting publishers and mechanical executives in the newspaper industry with the advances that have been made in the application of alternating current drives to high-speed newspaper presses.

In view of an erroneous interpretation of this article that has been brought to my attention it is apparent that not all manufacturers of press drive systems understand the present a.c. drive system, but those who have had practical experience with the press performance obtainable with the G. E. two-motor a.c. drives and those who are thoroughly familiar with press load requirements and the characteristics of the a.c. motor under press load conditions know the possibilities of the a.c. system. There are in operation today over 30,000 h.p. in General Electric 2-motor a.c. press drives. This figure is of little significance but it is significant that there are over 8000 h.p. of G. E. a.c. drives installed in sizes of 125 to 200 h.p.

In my previous article I made the following statement, "Where d.c. power is available at a comparable rate with a.c., with assurance of continued availability, d.c. press drives should be used." This is common sense since the adjustable speed d.c. motor, by itself, is more efficient at reduced speeds than the slip ring a.c. motor but, where a differential in power rate exists in favor of a.c., or conversion apparatus becomes necessary to obtain d.c., it is sound engineering practice to use the a.c. drive and not burden the publisher with unnecessary equipment.

I sincerely hope that I can present the following facts regarding the General Electric a.c. system so clearly that they can not be misinterpreted.

PERFORMANCE AND FLEXIBILITY

In my previous article I made the following statement: "Today a.c. press drives have been developed by alert and conscientious electrical manufacturers to a degree where they are comparable in every respect to the performance of d.c. drives. Threading-in speeds are maintained exactly like d.c. Acceleration and deceleration are obtained in the same time and with the same smoothness. From the standpoint of performance and reliability exactly the same guarantees are made for both a.c. and d.c." This is a statement of fact and holds true 100% for General Electric two-motor a.c. press drive systems for high-speed presses.

Before the thorough analysis and study of the application of a.c. drives for high-speed presses it was thought that a speed reduction of about 50% only was obtainable. Today General Electric guarantees a complete operating speed range of 25% up to maximum. In papers per hour this means that a press geared for 60,000 p.p.h. can be operated at any point down to 15,000 p.p.h., and any operating speed point in this range will give a steady press speed and will not vary all over the lot as one less familiar with the application might imagine.

*Industrial Department, General Electric Co., Schenectady, N. Y.

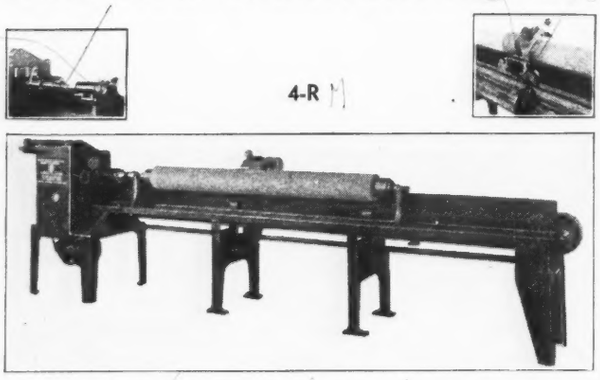
USE BLACK ROCK *EQUIPMENT*
FOR ACCURATELY GRINDING AND POLISHING ROLLERS

HAS your plant considered the economy of an installation of Black Rock Roller Grinding and Polishing Equipment?
The Black Rock equipment shown on this page is the finest grinding and polishing equipment obtainable. Each piece has been tested under the most severe conditions on all types of rollers. Write today, telling us your requirements and let us determine whether Black Rock Equipment can save money in your plant.

THIS EQUIPMENT MAY BE SEEN IN OPERATION AT THE DETROIT TIMES, MAY 27, 28, 29

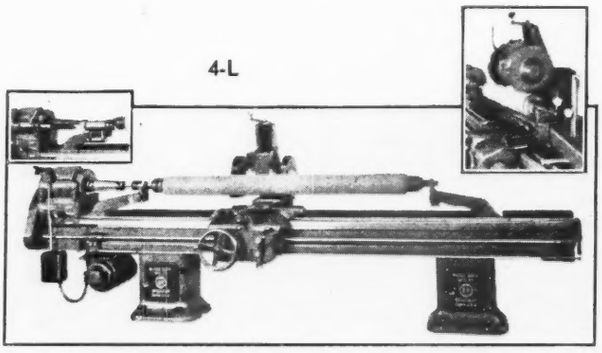
Black Rock Manufacturing Co., 177 Osborn St., Bridgeport, Conn.

4-R



The 4-R Roller Polisher, above, is designed to rapidly and accurately polish rubber rollers coming within specifications given by leading press makers. It eliminates the laborious, inaccurate hand polishing and maintains dimensions relative to those produced on our grinder. Capacity of 2 to 8 inches diameter and length between bearings from 0 to 9 feet 7 inches. Consumes about 2 h.p. Floor space, 2 feet 6 inches by 14 feet. Maximum height, 4 feet 4 inches.

4-L



This 4-L Grinder is used by many leading newspapers handling rollers specified for leading presses, including gravure and lithograph rollers. Roller ground at any point from top to back permitting user to grind straight or with crown due to natural sag. Capacity of 3 to 12-inch diameter and a length from 1 to 9 feet between roller bearings. Consumes 4 h.p. Occupies a floor space of 4 feet by 13 feet 8 inches. Maximum height, 5 feet 4 inches. Sturdily built — does accurate clean-cut work.

In addition to this, the General Electric a.c. system provides a guaranteed steady speed below this operating range for running off butts of rolls.

General Electric printing equipment engineers who have studied modern press room conditions and requirements fully understand the necessity of different press unit combinations from day to day and even from edition to edition on the same day. In this connection let me state that General Electric guarantees the same operating speed range and the same steady speeds for all combinations in a plant. The possibility of expansion due to increase in press speeds and increase in number of units due to increased number of pages is fully appreciated and no expansion program need be hampered because of a.c. equipment.

SAFETY

With regard to the important item of safety to pressmen and presses, all the safety features of the General Electric a.c. system perform exactly like the safety features of the d.c. system. From the standpoint of the pressmen there is absolutely no difference whatever in the performance of the press with a.c. or d.c. in case of any emergency, whatever it may be.

OPERATING COST AND MAINTENANCE

With regard to operating costs and maintenance expense of the General Electric a.c. system it has been proved that these figures are astonishingly low. As this is a point that can best be determined by newspaper plants using the equipment, let me suggest that you ask those publishers who are using, or have on order, 45 General Electric a.c. drives in capacities of 125 to 200 h.p. The facts concerning the operation of General Electric a.c. drives are available to those who are really interested in learning all about the equipment suited to their particular requirements and make futile any further discussion of this issue.

American Display Type

Owing to the demand for slightly condensed and excessively black type faces, the American Type Founders Sales Corporation announces the revival of Othello.

Othello was originated by the Central Type Foundry, St. Louis, nearly four decades ago, and later shown in the first

American
OTHELLO

collective specimen book issued by the American Type Founders in 1896. It has been revived practically unchanged.

Othello is intended as a type for producing both personality and power on small or large advertisements and for reverse effects—white or colored words with surrounding black backgrounds.

Stereotype Molding Blanket

Application for a patent has been made by The Russell Products Company covering the Franklin Apex Combination Stereotype Molding Blanket. It is stated that through the use of this blanket the bowls of the type will mold deeply into the mat and yet the blanket will produce good solids and halftones with a minimum amount of pressure; buckling of mats is prevented and loose cuts will not move during the molding process, and broken rules and damaged type are avoided. The new Apex Combination Stereotype Molding Blanket, state officials of the Russell Products Company, is in use in some of the largest newspaper plants in the country, and the same guarantee goes with the new blanket as with the Franklin Clean Print Molding Blanket which is being used in two hundred and eighty newspaper plants.

Further information may be obtained by addressing Russell Products Co. in care of *Printing* EQUIPMENT *Engineer*.

MADE IN U. S. A.

CORKPAK

REG. U. S. PAT. OFFICE

"The Perfect Underpacking or Top Blanket"

NATIONAL and LOCAL ADVERTISERS, the country over are demanding better printing, sharper cuts and clearer half-tones.

CORKPAK PRESS BLANKETS will enable you to meet this demand.

Perfect impression guaranteed.

Economical — Long Lasting — Low Cost.

OVER FIVE HUNDRED SATISFIED USERS. There are sound reasons for this, ask any user, he knows.

CORKPAK DRAW SHEET (Tympan)
CORKPAK CORK TOP BLANKET
CORKPAK RUBBER BOTTOM BLANKET

CORKPAK LEADS BECAUSE THEY ARE BEST. Investigate. Samples and prices upon request.

Pressroom and Stereotype Supplies
For all make and type presses

Cork Blankets	Cork Moulding Blankets
Cork Underpacking	Rubber Creeper Blankets
Rubber Blankets	Cutting Rubbers
Draw Sheets	Collecting Pins

The Corkpak Company, Inc.
801 SECOND AVE. (at 43rd Street) NEW YORK

CORKPAK PRESS BLANKETS

CORKPAK PRESS BLANKETS

CORKPAK PRESS BLANKETS

STEEL CHASES
FOR
ALL NEWSPAPER PRESSES

SANDBLOM STEEL CHASE CO.
426 S. CLINTON STREET
CHICAGO

Why Burn Your Metal?

Why waste fuel?

Why spoil plates?

Why risk expensive delays?

Use an "Alnor" Pyrometer

PRICES **$28 to $38** Depending upon size

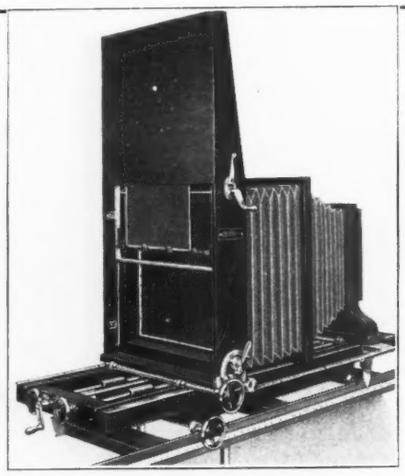
Why guess at metal temperatures when you can equip each stereotype pot, electrotype or remelting furnace with an "Alnor" Pyrometer for as low as $28.00? The "Alnor" Pyrometer is accurate, rugged and durable. It can be installed by any shop man in a few minutes.

It pays for itself many times over in the saving of metal, time and fuel to say nothing of improving your printing through better plates.

Write for descriptive bulletin and list of users.

Illinois Testing Laboratories, Inc.

139 W. Austin Avenue Chicago, Illinois



Robertson Highlight Camera

Made in Dark Room or Gallery Type

THIS type camera is the very latest development in a camera for process work.

The camera is equipped to take either plates or films. Films are handled very rapidly as any size film is held flat simply by placing it on the stay-flat plate of holder.

To make a combination half-tone and line negative, the half-tone negative can be made and then by turning the handle on the outside of case, the screen is raised out of the way and the line negative is exposed.

This camera speeds up production and produces exceptionally fine quality of work.

R. R. ROBERTSON

400 West Madison St. Chicago, Ill.

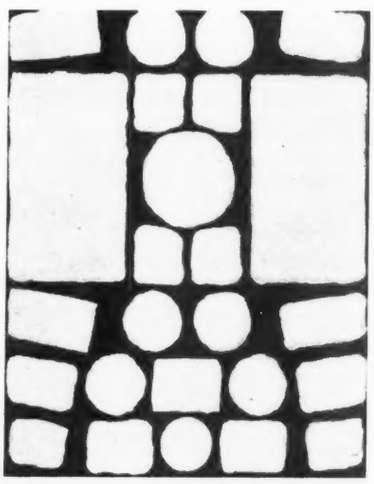
The Robertson new type Zinc Etching Machine is a big improvement. Write for information.

Reverse

Blue Print for Filling Mortises

By C. M. BIGSBY*

WITH respect to the composition of type matter in advertisements where the cut contains many mortises set at various angles such as are popular with food and drug store advertisers, I have devised a method for handling these "all-over" borders. A particular case in point is a circular which we print twice monthly. The circular consists of eight pages and each page contains many mortises set at irregular angles. After reading in *Printing* EQUIPMENT *Engineer* about one composing room executive's method for fitting prices into food-mat mortises, it occurred to me that an entire page of new copy could be handled in the same way by having the engraver furnish reverse blueprint of the cut.



A print is taken from a mortised stereo shell cast (upside down) on proof paper and afterwards coated with a mixture of coal oil and machine oil. The proof is laid on the galley on which the compositor fills in the mortises with type.

When the compositor is ready to set the advertisement he lays the reverse blue print on the bottom of the galley or on the page truck underneath the edges of the chase and the type is set over the mortise areas right on the blue print. Before filling the mortises, however, the floor man merely covers all of the printing areas in the form with zinc-high base and the rest of the space is left to fill in with type and spacing material. Since these "border cuts" are full of angles, this method saves innumerable operations in lifting the zinc over the type to see that it fits, and in addition, preserves the zinc in much better condition for the stereotyper by not having to handle it so much. The blue print as furnished by the engraver at 25c per page, obviously, is a very small item compared with the large saving in labor cost made possible by this system. We have found it is not necessary to remove the blue print from under the form before it is molded, as the blue print paper is firm and uniform and does not interfere with the molding.

Another variation of the same idea consists of taking a proof of mortised shell casting. We are now using these proofs of stereotypes in the same way we use the reverse blue prints of the zinc cuts. It should be noted that in taking the proofs of the stereotypes the shell casts must be laid upside down so that when they are put in the bottom of the galley they will form the correct pattern.

*Business Manager, Compton Printing Company, Compton, Calif.

Herrick Plant Enlarged

Approximately 3500 square feet of floor space has been added to the factory of the Herrick Ink Company at Maple St. and Erie Railroad, Rutherford, N. J. One-third more new equipment has been added to the present plant facilities.

The Herrick Company has removed its New York office to 352 West 34th St., where double the amount of floor space will be afforded to accommodate the increasing business of the company.

Chases

(Continued from page 29)

would seem that the stereotyper should give due regard (and the great majority of them do) to the pressure limits to which type may be subjected. Nothing can be gained by the attempt to increase mat molding depth beyond the point where type and mounted electrotypes will flatten out very much below the type level. After having molded a page with the maximum pressure which can be sustained by the form (without crushing the type matter) the stereotyper has obtained the maximum depth which it is practical to get. Further pressure will in no way help him get a better printing surface in the plate. It might be mentioned here that type matter can be subjected to excess pressure in a type high chase as well as in one in which the chase is not of sufficient height to act as a bearer during the molding of a mat.

Some comment has been made that while newspaper page chases may be 0.918 in. high when first put into use they do not hold the original measurement over a long period of time since the chases are subject to considerable friction when slid from truck to molding table and again to the truck after the page has been molded. In fact, some boosters of the "type high" chase idea believe a reduction in the height of the chase of 0.002 in, or thereabout is a good thing since 0.916 in. still gives a means for molding control and at the same time permits obtaining maximum molding depth in the mat.

I know of a stereotype superintendent who had the bolsters of all the chases in the plant built up nearly to linecasting machine slug-body height. (Slug body height is approx. 0.875 in.). This was done with thin steel strips which made the height from top of bolster to the bottom of the chase approx. 0.871 in. The strips were held in place by small flathead screws. It is claimed that the bolster in a chase which is of the customary 1/10 in. depth will scorch so hard in the mat that when placed in the casting box the locking ring and sticks cannot flex the bolster portion but set up a resistance in such a way that the edge of the page as represented in the mat will draw down and when the plate is poured the edge of the plate will cast too thick at the edge.

The use of less-than-type-high chases, of course, is practical, but their use does not promote the element of accuracy in newspaper plate-making and the entire

Composing Room Superintendents

SAVE MONEY FOR YOUR DEPARTMENT

McIntosh's new Transforming and Layout Tables book saves time and money for layout men, ad writers, composing room foremen and compositors. It shows a seventy-five percent saving on keyboard layout time per tabular heading. It saves time and money by answering any problem without numerical complications.

This valuable book contains estimating tables for finding the number of characters per line or per inch, in any size type from five set up to and including thirty-six set, in any measure from one to one hundred picas, or one to one hundred square inches. It answers 96,300 problems instantly for monotype keyboard operators.

Sent on approval to any responsible concern. Price, $10.00. Send coupon now.

Mc INTOSH

JAMES C. McINTOSH,
1241 Superior Avenue, Cleveland, Ohio

Please send me on 10-day approval..... copies of McIntosh's Transforming and Layout Tables.

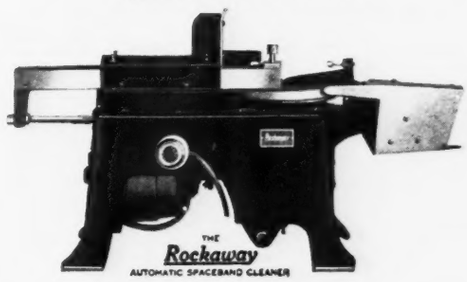
Name.....

Firm.....

City..... State.....

INVESTIGATE...

The ROCKAWAY Automatic Spaceband Cleaner



The new model Rockaway Automatic Spaceband Cleaner with many new improvements has completely revolutionized spaceband cleaning. It has the approval of mechanical executives wherever it is shown. These men have absolutely proven that the Rockaway is the finest spaceband cleaning equipment they have ever used. They can quickly show you how it saves money, time and material and it turns out first class work.

The Rockaway is economical. It can be run off the lighting system at an average cost of only one cent per hour. This machine increases the output of your department. It will show a decided improvement in the spacebands themselves. The rockaway is an investment that soon pays for itself. The machine is guaranteed to do the work as represented. Machines for foreign shipment are protected against salt water damp, properly boxed and prepared to conform with all shipping regulations. Now's the time to bring your spaceband cleaning equipment up to date.

Write today for complete information, including prices. We will also be glad to send you a list of installations in newspapers from coast to coast.

THE ROCKAWAY COMPANY

5409 West Vliet Street Milwaukee, Wisconsin, U. S. A.

plate-making process is subjugated to the lone item of attempting to obtain maximum molding depth in the mat. Pages consisting of open areas, small type masses or large cut areas contained within less-than-type-high chases do not lend themselves to controlled rolling technique.

To a considerable extent lateral pressure is employed in a stereotype matrix molding machine. The leading edge of a form is less apt to "dig into" the mat where type high chases are used. The bearer factor permits preparation of mat and page for constant and even molding.

A rather significant statement appears on one of the pages of the American Steel Chase Company catalog, which is as follows:

> Unless otherwise specified our stereotype chases will be supplied exactly type high (0.918 in.).
> It is further stated:
>
> Some newspapers, however, prefer a chase lower than type high to get a clearer impression of type page on the mat. We therefore carry this steel 29/32 in. (0.906 in.) high and can supply chases of this height without extra charge. If any other height besides 0.906 in. and 0.918 in. is wanted it can be supplied at a slight additional charge.

An equipment manufacturer states that after a study of various large newspaper plants he finds the heights of chases vary from 0.906 in. to 0.918 in. and in some cases where double-page chases are used 0.918 in. is more or less standard. The consensus of opinion of several stereotype foremen and mechanical superintendents is that they believe 0.918 in. would be the most desired height. They point out that type high chases seem more desirable if the corners of the chases are chamfered off slightly so that when the forms are about to pass under the matrix roller the molding combination will not be struck too abruptly.

It has been suggested that where chases, high part of bolster bars and type matter are of equal height the edge of the mat is prevented from pulling down in the casting box. The casting of a low or shallow edge on the plate which would print weakly in the paper is prevented. Another suggestion has been made that the surface of the chase be knurled or scored to hold the mat in place while being rolled, as well as to hold the mat in place in the casting box as it would tend to prevent the mat sliding under the side sticks.

Gravure

(Continued from page 60)

light is admitted through the highlights of the subject, thus making the gelatin firmer and less soluble at these areas, while less light is admitted where the shadows are deep, so that the gelatin is more soluble at these points. The greatest hardening of the sensitized bichromated gelatin occurs at the gravure-screen lines, then the graduated depth of hardening, between the screen lines, depends upon the opaqueness and shadows of the positives in the original layout.

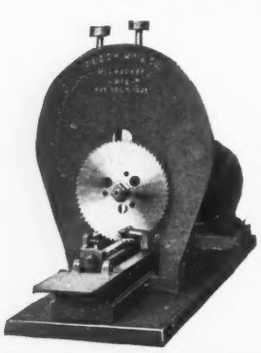
With the prepared carbon tissue, the process of etching polished thin copper plates and copper tubes, for sheet-fed

TINGUE PRESS BLANKETS
FELT Coating by Dupont
TINGUE DRAW SHEET
TINGUE CUSHION-CORK
•
TINGUE, BROWN & CO.
CHICAGO 1227 Wabash Avenue
NEW YORK 120 East 25th Street

SLIDE RULE FOR PRINTERS
★ A Mechanical Instrument will enable you to find Short Cuts that will save you many valuable hours . . *Write for information*
O'SULLIVAN LINOTYPE COMPOSITION CO.
LINO-TABLER SPECIALISTS
47 West Street - - - New York, N. Y.

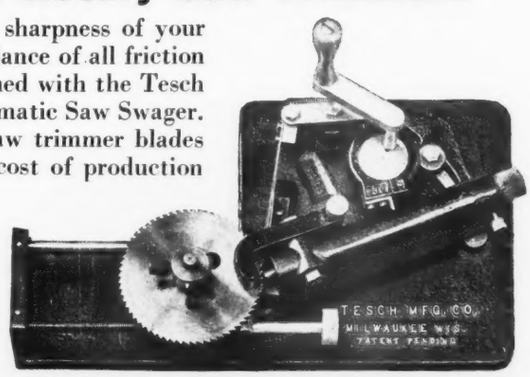
MONOTYPE PARTS REBUILT
CORRECT MONOTYPE MACHINE OILS
NEWTON'S MACHINE SHOP
211 High St. Established 1925 Cleveland, Ohio

The Secret of Good Sawing with Rotary Saw Trimmers



Accurate sawing is dependent upon the sharpness of your rotary trimmer saw blades plus the avoidance of all friction in the cut or kerf. This is best accomplished with the Tesch Automatic Saw Filer and the Tesch Automatic Saw Swager. Both of these machines will give your saw trimmer blades absolute accuracy in cutting and lower cost of production in your publishing plant.

"They Pay for Themselves"
Write for Literature
TESCH MFG. CO.
2700 S. 19th Street
MILWAUKEE, WISCONSIN



gravure presses, and copper cylinders for rotogravure presses, is practically the same. The prepared carbon tissue is moistened with water in order to secure it firmly to the surface of a copper plate or copper tube, for a sheet-fed gravure press. In this connection, a squeegee machine (of which there are several different makes and styles) is used to insure positive contact of the carbon tissue with the plate or tube, and also to eliminate the possibility of distortion. When properly attached to the copper plate or tube, the carbon tissue is washed with warm water until all the gelatin which has been unaffected by the action of light has been washed off. This leaves on the surface of the copper the light-hardened gelatin of varying depths, in proportion to the graduation of tone in the original positives. The light-hardened gelatin is dried on the copper plate (copper tube or cylinder) and thus forms a resist for the etching fluid, but before starting the etching, all areas of the copper plate (copper tube or cylinder) which are not to be etched are painted with an asphaltum varnish.

The etching "acid" consists of a solution of ferric chloride, or perchloride of iron which is specially prepared for the purpose. This solution is made of varied strengths which are usually kept in separate glass containers for immediate use, each in proper order. The etching is started with the most concentrated and heaviest acid, because it will have less effect on the gelatin tissue than the same acid containing a greater percentage of water, and it will go through the thinnest film of gelatin first, etching the shadows. The solution may be poured slowly over the surface to be etched from a small glass pitcher, or it may be applied by means of a wad of soft cotton soaked with the solution. Then, by progressive steps, the weaker solutions of acid are applied until the highlights are etched. With some classes of work including both illustrations and reproductions of type-matter, the illustrations are first etched, and after these sections have been "staged" with asphaltum varnish, the type sections are etched to the desired depth as a separate operation. The "staging" process may also be followed in cases where it is desired to re-etch deep tones or shadows of illustrations. By this method, it is possible to etch highlights of halftone illustrations only about 0.001 in. deep, intermediate tones and shadows deeper in proportion, and display typography as deep as 0.005 in. However, there are no set standards for the varying depths of etching. The highly-skilled etcher is an artist in his line and he understands the depth of etchings and re-etchings required for each subject.

When the etching has been completed, luke-warm water is poured over the entire surface of the gelatin and copper, to wash away all traces of the etching fluid. The remaining parts of the gelatin film are then removed with acetic acid, then the copper plate (copper tube or cylinder) is cleaned of all gelatin and asphaltum varnish with alcohol, and is then ready for the press.

By examination of the etched surface of the copper plate, tube or cylinder, through a magnifying glass, it will be seen that the intaglio engraving consists of minute square cells, all of uniform area but of varying depths. In the case where a 150-line gravure screen has been used, there will be 22,500 of these cells to each square inch of the etched surface. Each cell is surrounded by a thin wall of copper, smooth on its surface. These walls, in addition to holding ink for each impression in the cells, will also act as "bearers" for the doctor blade when it is in motion to scrape the ink from the entire surface of the etched plate, tube or cylinder. The ink that remains in the cells will form the printed impression on the sheet of stock, the pressure for the impression being procured from the rubber blanket impression cylinder on the gravure press.

The new makes of sheet-fed gravure presses are equipped with air and electric heating units for drying the printed sheets as they are delivered.

FITZ-LIVECORK

PRESS BLANKETS
Due to their
Resiliency and Uniformity

•

IMPROVE THE APPEARANCE OF THE SHEET

•

Fine Mileage at Low Cost

•

Write for Prices and Samples

•

FITZ PATRICK FELT MFG. CO.
1971 EAST 79th STREET CLEVELAND, OHIO

★

GREATER SALES OF
HERRICK QUALITY INKS
NECESSITATE EXPANSION

The manufacture of uniform quality inks and prompt service to hundreds of ink users has brought a substantial increase in business the last two years of Herrick Inks. This increase coupled with an anticipated growth in the near future has necessitated the addition of 3250 square feet of space in our factory at Maple Street and Erie Railroad in East Rutherford, New Jersey. To further facilitate handling this increased business, new equipment has been added which increases working capacity by 33%. The William C. Herrick Ink offices have also been moved to about double the floor space.

These increased facilities will enable us to render even better service to our many customers in the future.

WILLIAM C. HERRICK
• INK COMPANY • *Inc.*
325 West 34th St. New York City

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the shortest way
FROM PATTERN TO PAGE

(9a.m.)

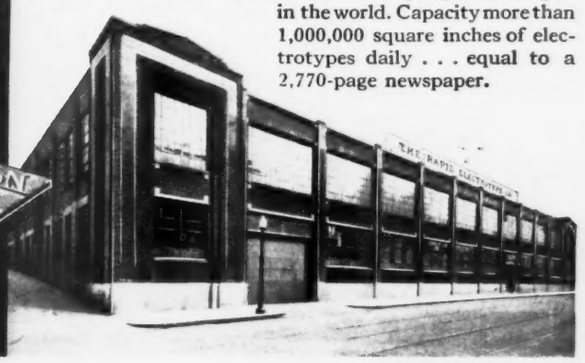
ACCOUNT EXECUTIVE: "This advertisement must be in the hands of every daily in the country in 48 hours. How can we do it?"

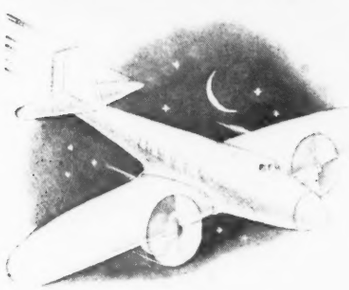
PRODUCTION MANAGER: "I'll rush the pattern to Rapid. If anyone can save our necks, Rapid can."

Half an hour later the pattern is on its way to Rapid.

THIS is the pattern. And on the right is the electrotype — one of many others from this pattern, all of highest quality, all produced rapidly.

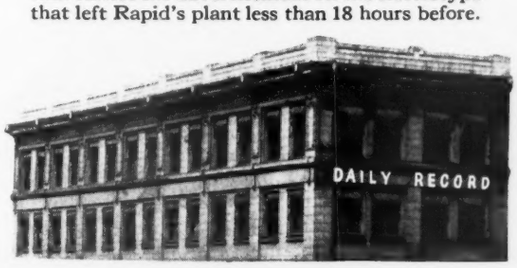
BELOW — And here we are at the Rapid plant. Largest in the world. Capacity more than 1,000,000 square inches of electrotypes daily . . . equal to a 2,770-page newspaper.





RAPID — at the center of population — studies transportation closely. Knows the quickest way of getting electrotypes to destination. An electrotype can leave Cincinnati at 3:56 p. m. and be in Los Angeles at 6:45 a. m. (Pacific Time) next day!

Here is the building that houses the newspaper that carries the advertisement on the electrotype that left Rapid's plant less than 18 hours before.



And here — the following afternoon — a reader is enjoying his paper, reading and heeding the advertisement that the agency executive was afraid wouldn't get there in time!

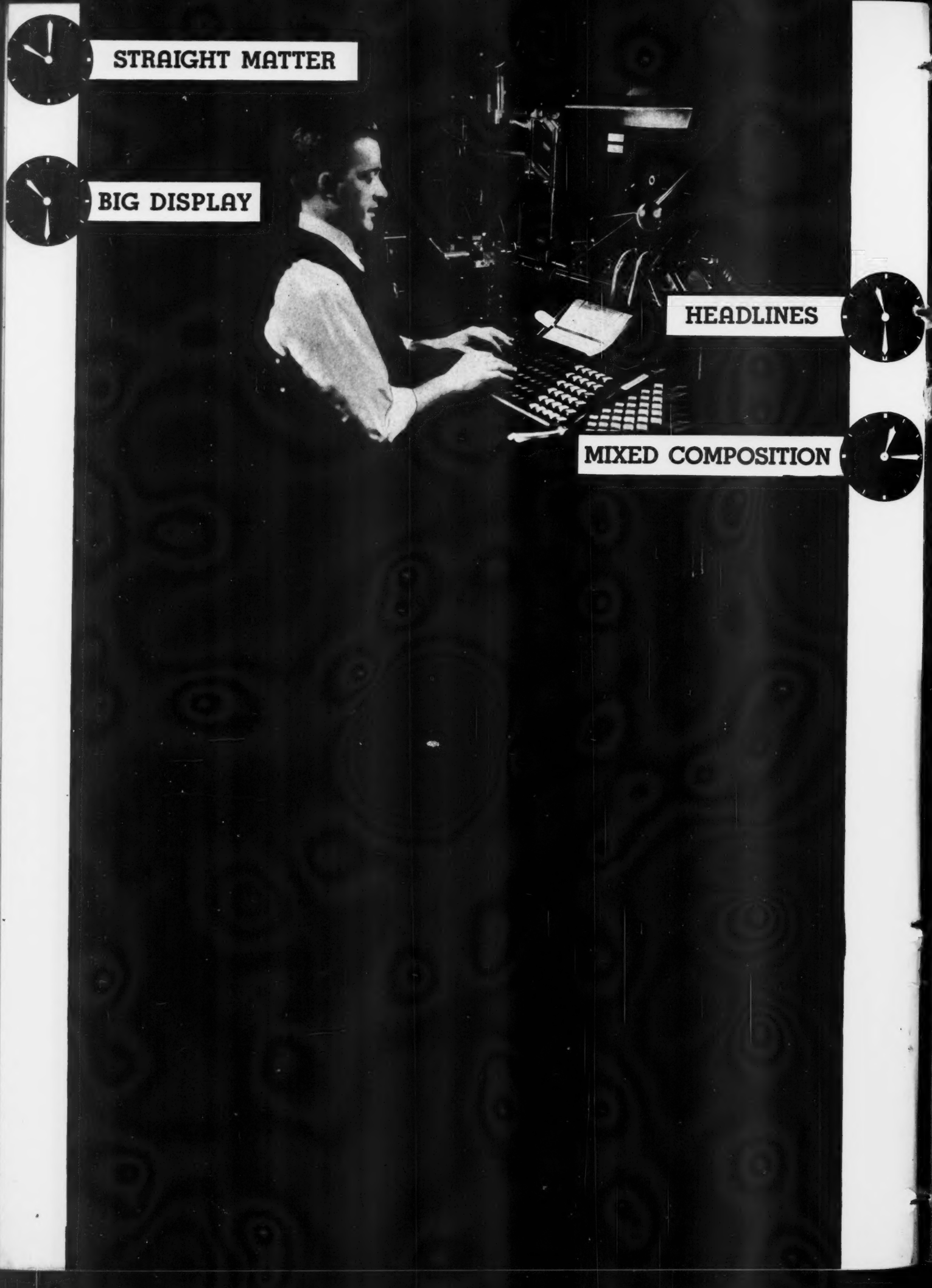
LARGEST PLATE MAKERS IN THE WORLD

The Rapid **ELECTROTYPE** *Co.*

CINCINNATI

BRANCH OFFICES:
NEW YORK
CHICAGO

ATLANTIC ELECTROTYPE & STEREOTYPE CO., 228 E. 45th Street, New York


STRAIGHT MATTER
BIG DISPLAY
HEADLINES
MIXED COMPOSITION